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NEGLECTED OPPORTUNITIES FOR EPIDEMIOLOGIC STUDY *

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It is a common impression, even among public health workers, that epidemiology is a highly specialized science concerned primarily with the control of acute epidemics. There is, too, the impression that sound epidemiologic observations are possible only to the highly trained specialists and, hence, workers situated in the most strategic position for epidemiologic observations are neglecting vital opportunities for critical study. It is time, therefore, to revise both misconceptions, for history clearly shows each idea to be a misconception. Certainly in the field of public health physicians must concern themselves with the causes and conditions of health as well as with the causes of disease. In other words, we must be both positive and negative in our point of view and hence must study the factors that produce health in addition to the etiology of disease. Moreover, the field of inquiry into the endemic expression of disease must be widely extended. It is not sufficient to relate our studies exclusively to the explosive manifestations of a condition. Its intercurrent conditions and the reasons for its maintenance between epidemics must be studied.

As to the second misconception: Sound epidemiologic observations were responsible for much of the accumulation of knowledge before the word "epidemiology" was coined. Hippocrates was such an observer and, proceeding through the time of the galenic tradition to the Renaissance, many others succeeded him. In more modern times Snow and Budd of England will suffice as exemplifying the vast opportunities ready to the hand of the critically minded individual who is careful and exact in his observations. Indeed, such observations and the science of epidemiology had contributed much to the knowledge of the causation of disease and to the means of prevention long before Pasteur inaugurated the experimental method or before the bacteriologic era had dawned. Even today the bulk of our knowledge of certain diseases rests largely on epidemiologic evidence, for the mass reaction between a micro-organism and a group of individuals not infrequently contradicts an hypothesis of the bacteriologic laboratory. Certainly, both basic and special training are essential but the lack of special training in method must not be allowed to excuse the complete waste of the most valuable opportunities. On the other hand, every opportunity and every facility should be utilized to the full extent of its usefulness and meanwhile the trained personnel should be developed for more effective utilization of chances to develop control practices that are really adequate to the problems.

I am going to examine briefly the field of epidemiology as to its scope and purpose and then consider this field in relation to facilities that now exist and which may be developed.

In its general usage, epidemiology may be defined as the science or knowledge of the mass phenomena of disease. Just as there is a distinct clinical reaction between a micro-organism or its by-product and an individual—this reaction constituting the distinctive signs and symptoms of a disease—so there is a distinct mass reaction between a micro-organism or its by-product and groups of individuals. This reaction is characterized by certain distributions of cases or carriers with regard to time, space, age, sex and environmental conditions; and such distributions are often quite as distinctive in their various combinations as are clinical signs and symptoms.

Epidemiology may be considered a distinct specialty in the field of medical science. It has for its major weapon specific items of information which it obtains from other distinct specialties, notably bacteriology, immunology, pathology and statistics, and its function is the collection and analysis of these various specialized items of information and finally the correlation of these items in such a way as to offer the broadest possible perspective with regard to the nature of the disease.

It therefore becomes apparent that epidemiology cannot become fully separated from other mutually dependent fields of medical science. It, on the other hand, is distinguished from other fields, partly by the different scope of its subject matter and partly by its different methods of approach. The scope of its subject matter may be defined as not the sum but a summary of the knowledge of disease, and in its method of approach its procedure has for its purpose the deduction of biologic characteristics of specific micro-organisms from observed reactions on groups of individuals under various complex environmental conditions. In other fields the method of approach is generally quite reversed. For example, in bacteriology the specific micro-organism is directly observed under controlled experimental conditions, and from such observations deductions are made with regard to the reactions of the organism under the more complex environmental conditions which obtain in nature.

Further evidence that epidemiology is not wholly dependent on other allied sciences is strikingly indicated by reference to the work of Snow in the middle of the nineteenth century, before the days of bacteriology, when he presented to the Medical Society of London the

* Chairman's address, read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

epidemiology of cholera, and gave an exposition of the germ theory of infectious diseases which in the light of more recent knowledge has proved to be substantially correct.

When one attempts to determine the various distributions of disease with regard to time, space, age, sex and environmental conditions, and in turn to evaluate these various conditions with respect to their relative effects on such distributions, the complexity of epidemiology becomes apparent.

Viewed in this perspective, it might then be stated that knowledge of the epidemiology of a disease implies knowledge of all of the conditions in nature under which this disease occurs, and it would follow, also, that it implies knowledge of the conditions under which the disease does not occur. Obviously the acquirement of such knowledge involves observations over a long period of groups of individuals representing various types, under various complex conditions, among whom the disease expresses itself with varying degrees of force.

Such observations involve a procedure which is to be contrasted with the actual procedure of epidemiologic study so generally practiced today. The great bulk of epidemiologic investigation to date has consisted of more or less isolated observations, limited to a particular time interval during which there occurred an epidemic, and concerning itself with a distinct group of individuals representing one or only a very limited number of conditions under which a particular disease may have expressed itself.

If epidemiology is to meet the demands that such an interpretation of its functions place on it, is it not justifiable to ask whether or not the proper approach in epidemiologic research has been made?

Since epidemiology concerns itself with a mass study of man's reaction to the invasion of micro-organisms and the environmental influences under which he lives, which of the three elements in public health organization has the largest opportunity for epidemiologic observation? Quite obviously the answer must be, the local health department. True, state health departments and the federal health service occupy positions of importance and can render service not possible to the local health service, but neither is as near the field of observation and neither can, except at needless and prohibitive expense, duplicate the facilities of a local health service.

Early observations by individual local observers have been mentioned—more recently what may be termed cross-section studies have become the mode. Such studies are quite definitely limited in point of time and usually in the geographic spread of the observations. It would seem a perfectly logical development to begin a longitudinal type of study under which time periods could be indefinitely extended and the geographic spread limited only by the number of local health services necessary to a proper sampling of varying types of conditions. Certainly if the causes and conditions of health are to be studied at all, it must be done by the longitudinal type of investigation.

Isolated instances of what may be done by this method of approach stand out as examples of opportunity lost by the majority. Chapin, through his work at Providence, has done more to disturb the complacency of self-satisfied health officers in this country than any other single individual. Vaughan and his associates in Detroit are contributing to our knowledge both in epidemiology and in administrative practice to an extent equaled by almost no other local health department in the country. A few other examples might be cited but they are all too few. There is some excuse for the lack of such work in rural areas, for full-time health work in such areas is of relatively recent development. In my own state, however, I have become convinced that, unless a certain amount of epidemiologic study is developed by the rural health departments, the administrative practice will degenerate into a routine and no improvement in quality of control practices may be expected. For this reason all the better organized areas are being stimulated to specific study activities and several larger projects have been organized in certain counties by supplementing the local personnel.

The value of such work is twofold: First, it stimulates scientifically progressive control measures through the acquirement of more exact knowledge; and, secondly, it promotes a critical point of view in the minds of local health workers and creates a spirit of "healthy discontent" with existing knowledge or lack of knowledge. This spirit of "healthy discontent" when under sound guidance is, of course, synonymous with progress. The present point of view may perhaps be best illustrated by a brief outline of some of the studies on which the rural health departments are now engaged.

For a number of years it has been known that hookworm disease was a problem in Tennessee, but the extent of its importance was not known. An investigation in a neighboring state led to the belief that *Ascaris* infestation might also be a problem. The state department of health was able to effect a cooperative arrangement with the Department of Preventive Medicine of Vanderbilt University and the Department of Helminthology of Johns Hopkins University for the purpose of making an incidence and epidemiologic study of the intestinal parasites of Tennessee. The study will be partially completed this summer and will have covered forty-seven of the ninety-five counties. Figures as yet have not been completely tabulated, but the information to date indicates that hookworm disease is of minor importance and is confined to a small area as a public health problem although *Ascaris* infestation is rather heavy. The treatment of hookworm disease is now in progress. The present method of treating *Ascaris* infestation is not satisfactory, and to meet this deficiency we are now in the process of experimenting with another remedy that has been suggested.

It has long been supposed that malaria was a problem in the greater part of Tennessee. For the past several years the department has been checking up clinical diagnoses of malaria by means of laboratory examinations and it has been found that the disease in endemic form is confined essentially to the western counties of the state. For the past three summers, epidemiologic studies have been made to determine the factors involved in its endemicity. Experiments have also been conducted in control measures on a county wide basis.

Tuberculosis has probably been studied more than any other disease, but yet we know comparatively little of its epidemiology. Certain counties in Tennessee have been selected which already have well organized county health departments and into these counties additional personnel is being placed that will carry out a special study in cooperation with the local health service.

Longitudinal studies in tuberculosis have been projected so that the families may be observed over a number of years and thereby a better understanding may be had of the causes and conditions under which the disease is occurring.

Another county is being studied to determine the epidemiologic factors involved in rural typhoid. The county selected once had a high typhoid death rate. Since the establishment of the county health department there has been a marked decline in typhoid as contrasted with neighboring counties without county health departments. An effort is now being made to evaluate the procedures followed in the control and to add further information concerning the factors involved in the spread of rural typhoid.

To emphasize further the importance of the local health service to epidemiologic study, I will summarize the objectives of this tuberculosis study. We have asked ourselves: 1. What is the definition of our tuberculosis problem? 2. Under what conditions does tuberculosis occur in Tennessee, and what are the relative effects of these various conditions on the occurrence and progression of the disease? 3. To what extent is the racial difference due to biologic factors, and to what extent is it due to environmental or sociological factors? 4. Is this difference due to a racial difference in susceptibility, exposure, immunity or other factors?

The method of approach to the solution of these questions is from an epidemiologic point of view.

The director of the study is an individual trained in epidemiology. Other personnel are of course used, such as clinicians and pediatricians, but these observers paint in only the background of the picture. It is the epidemiologist who paints in the foreground and aids in the critical observation of the completed picture.

The responsibilities and opportunities of the state and federal health services for epidemiologic study and research are more definitely realized but should be outlined here in relation to the work of local health agencies. Briefly, they are as follows:

The federal service correlates the study into a national comprehension of the problems as a whole and undertakes research which is possible only on a national scale. In addition it must undertake certain studies which neither the state nor the local health department is equipped to do.

Similarly the state can correlate local studies into a state comprehension of the problems and can develop these studies into state-wide application. It must also plan and direct the study program as a whole in such a way that each local health department may make a definite contribution but that no department will duplicate work done elsewhere.

In addition, the state can furnish expert consultant service to the local department, supervise the studies as a whole, and assemble such supplementary resources as are necessary.

The local health department, however, is the agency strategically situated to make observations, collect information and aid in the interpretation of these basic data in terms of local conditions, and in turn allow for deduction relative to the expression of disease under different conditions. Hence it is seen to be the vital link in the chain of facilities for epidemiologic research and study just as it is the vital link in the chain of organized facilities for the administration of public health work.

While under the present organization of health service in this country much can be accomplished, yet before such a plan as is contemplated in this discussion can reach its greatest development, certain basic improvements must be effected: 1. Local health service must be put on a professional basis and under the direction of a whole-time health officer, who will have at his command a more adequate budget than now prevails. 2. The personnel of such departments and particularly the directing health officer must be especially educated in epidemiologic methods. 3. States must recognize their responsibility and meet it by establishing bureaus or departments of epidemiology in the state health department that will be able to stimulate activity on the part of the local health officer and to correlate local studies into a comprehensive program which will have state-wide as well as local application. The federal government should, first of all, have a corps of highly trained epidemiologists to assist states in organizing such departments and in coordinating the whole program into a nation-wide plan for both the improvement of epidemiologic service locally and for increasing the sum of human knowledge on the subject of health and disease.

Too long has it failed to be realized that the place for the best epidemiologists is in the field with the local health organizations. Too long have the opportunities for fruitful research been wasted by neglecting to utilize those facilities which are offered in local health organizations.

Such a conclusion is forced on any one who has had the chance to observe the work of and to consult with local health workers before and after special training in preventive medicine, and to contrast the results achieved by such workers under the two sets of circumstances.

Tennessee War Memorial Building.

ECONOMIC RESULTS OF THE MODERN TREATMENT OF DIABETES

STATUS OF PATIENTS TREATED WITH INSULIN COMPARED WITH THEIR PREDIABETIC CONDITION *

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My reason for having made the analysis of cases on which this report is based is to determine as far as possible the completeness with which insulin rehabilitates the diabetic patient to his former physical and economic level.

Fitz and Murphy [1] have shown by the use of the Martin spring balance test that the muscle strength of the untreated diabetic patient is impaired but that it approaches normal with treatment. Before the advent of insulin, Miles and Root [2] applied psychologic tests to patients and concluded that the untreated diabetic patients were subnormal mentally and that treatment with diet did not bring them completely back to normal.

There obviously are many factors, some of which are unmeasurable, such as adaptability and urge, aside from physical strength and mental acumen, which make up the quantum of forces essential for economic success. For this reason I have approached this subject from the standpoint of the patient's total reaction to his environment rather than by applying specific tests.

The patients have been selected from clinic and private practice, about half and half, irrespective of age,

* From the Buffalo General Hospital and the University of Buffalo School of Medicine.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Fitz, Reginald; and Murphy, W. P.: The Muscular Efficiency of Patients with Diabetes Mellitus, Arch. Int. Med. **34**: 402 (Sept.) 1924.

2. Miles, W. R., and Root, H. F.: Psychologic Tests Applied to Diabetic Patients, Arch. Int. Med. **30**: 767 (Dec.) 1922.

but only those who met the following qualifications: 1. That they should have been under insulin treatment for a sufficient time to bring about what appeared to be maximum improvement. 2. That they should be free from interfering complications. One case, however, associated with pernicious anemia is included because the anemia is so completely controlled by liver. 3. That they should be sufficiently intelligent and cooperative to answer questions. Most of these patients have been seen frequently, so that the physician-patient relationship is present.

RESULTS OF OBSERVATIONS

Body Weight.—Eighty-one such patients were found, twelve of whom were children under 15. Forty-two of the adults were considered to be average weight for their height and age, twelve were definitely overweight but could not be called obese, and thirteen were underweight. It is noteworthy that only three of those now underweight were overweight before the inception of diabetes. There seems to be a distinct tendency for insulin to bring body weight up to the patient's normal in the uncomplicated case. As the obese patient with diabetes requires insulin but rarely, such cases are absent from this series. Twenty-two of the adults and six of the children in this group had had coma.

Insulin Dosage.—Of the adults, only eight received less than 20 units daily; in twenty-two the dosage was between 20 and 40 units; in twenty-six it was between 40 and 60, and in nine it exceeded 60. The maximum dose, 70 units, was given to but two patients. Of the children, five received less than 20 units and seven required between 20 and 40 units.

Diets.—No formula has been used in prescribing diets, but an attempt has been made to adjust the total calories to the needs of the patient with regard to his age, weight and occupation. Every patient in this group is in a good state of nutrition and appears normal. The great majority received between 1,700 and 2,000 calories daily and only two get 2,500. The average is 1,900 calories. The carbohydrate content varies between 60 and 150 Gm., the average being about 100. Only a few receive as much as 170 Gm. of fat, and the greater number from 130 to 140 Gm. The usual gram per kilogram of protein is prescribed.

Period Under Treatment.—Fifty-two of the adults have been receiving insulin for at least four years, many of them for seven years. Of the children, the average period of treatment is three years.

The following data on a total of eighty-one patients have been obtained either by personal interview or by questionnaire. There was so little variation in the comments of the patients in the normal, overweight and underweight groups that it did not seem useful to report them separately.

Sense of Well Being.—Forty-eight of the sixty-nine adults stated that they felt as well as before the inception of the diabetes, and nine volunteered the information that they felt better. It is probable, however, that some of these had mild, symptomless diabetes for a period before its discovery so that there is no accurate way of determining the appearance of the disease. Of the remaining twelve who did not feel as well, three developed diabetes in childhood, one was going through the menopause, one was 65 years of age, three had not been given insulin until late in the disease, and three others had great difficulty in adapting themselves to the life of a diabetic patient.

Reaction to Physical Exercise.—Forty-three, 57 per cent, said that they could not exert themselves physically as they formerly could without fatigue. Many of them remarked, however, that they could do as much as ever for a short time. Many experienced insulin reactions during exercise. Twenty-six were convinced that they could do as much work as ever and that they experienced no fatigue; all of these led fairly active lives and two of them were farmers. No correlation between body weight and fatigue after effort could be determined. Twelve of the twenty-six required a large amount of insulin, while but four took less than 20 units daily.

Reaction to Mental Activity.—Fifty-four believed that they could do as accurate, sustained and concentrated mental work as ever, while thirteen felt that this function had been depressed. It is interesting that five of the latter were young people. Many commented that they felt a disturbance of mental acuity only during insulin reactions.

Change of Occupation Because of Diabetes.—Twenty-one of these patients were housewives or did housework, ten were students, six were school teachers, ten did hard manual labor, while nineteen others had sedentary occupations: clerks, salesmen and business men. Of these sixty-six, ten found it necessary to give up their former occupation, but five of them had suffered the maximum devastation of diabetes before insulin. All of the housewives were able to carry on their former work without additional help.

Earning Capacity.—Of the forty who were employed for monetary gain, only eight suffered a reduction of income; of these, five had not received insulin until late, while another is a frequent coma offender. On the other hand, three have improved their financial position. Only four in the entire group are not working; two of them have retired from business, one has just recently lost her position, while another is experimenting with a new treatment so that she can reduce the insulin. Two of these patients are receiving aid from charity and they but partial. Two patients lost appreciable working time because of diabetes. Twenty-six made the spontaneous comment that they had had fewer respiratory infections since taking insulin.

Among this adult group are included ten patients who rarely consult a physician and who eat an unmeasured diet at the common table. They are, however, faithful to insulin, which in some is increased at will when they find sugar in the urine and similarly decreased when they have insulin reactions. The diabetes in all is moderately severe and I am sure that coma would ensue in most of them if insulin should be omitted for a few doses. This small group serves as an interesting control to those who are on a well regulated program. Four of them state that they keep their urine sugar free, while the others admit constant glycosuria. It so happens that these four who keep fairly "sugar free" are also the ones who state that they can do as much physical work as ever without fatigue. A number of this group comment that they had frequent and severe insulin reactions and that they prefer to have glycosuria so that these may be avoided. There is often great difficulty in adjusting the time relationship between insulin and meals so that both hypoglycemic reactions and constant glycosuria are avoided.

Age Factor.—Since the number of patients in groups arranged in decades is about equal, it is noteworthy that no definite correlation could be found between age,

sense of well being, ability to do mental work, or earning capacity. Of those whose age exceeded 55, of whom there were seventeen, there was, however, a slightly greater relative number who could not carry on physical exercise as they formerly could. It would be the natural assumption that their physical impairment was caused by arteriosclerosis not only because of the normal aging process but also because of the relationship that exists between arteriosclerosis and diabetes. It seems well established that arterial calcification in the lower extremities that may be demonstrated by the roentgen ray invariably develops in the diabetic patient, irrespective of age, who has been insufficiently treated for a period of five years. Many of this oldest group fall into that category; they represent the preinsulin generation. On the other hand, I have observed a considerable number of patients who showed roentgenologic evidence of arteriosclerosis but who had normal pulsations who have been able to carry on for several years without symptoms, some of them doing heavy work. Probably such arteriosclerosis does not develop or does not extend when treatment is adequate.

In comparing the two adult groups, those who felt that their response to exercise was normal and those who experienced fatigue, with regard to caloric equivalent of diet, duration of diabetes, time elapsed after diagnosis before insulin was begun, age and insulin dosage, no causative factor could be found for this fatigue. However, when the occupations were compared it was found that all except two of those who felt no fatigue had sedentary occupations.

The Juvenile Patient.—Diabetes occurring in childhood represents a pure type and it is in these patients that the maximum improvement with insulin may be expected. Twelve such subjects under the age of 15, who have been under observation for several years, have been studied. All of them as reported by the parents are able to keep up with their playmates without fatigue; they apparently lead active childhood lives and are growing normally. Possibly the fact that they are so closely watched and their lives so well regulated accounts in part for these excellent results. As a class these children do remarkably well in school and it is reported that a number of them keep on the honor roll. In view of this and of the impression one gains of the higher intelligence of diabetic children, my colleague Dr. Gilbert Beck was interested enough to apply the Binet-Simon test (Stanford revision) to seven of these patients. He found that their mental age was considerably above their chronological, varying from one to three years. Two of them were older children, about 16; one of these was classified as a superior adult and the other as an average adult.

COMMENT

These patients as a class are economically sound; they are a plucky group, and on the whole are remarkably adaptable. Those who are properly cared for give every promise to live normal lives. On the other hand, the question should be asked: Why do the majority of these adult patients complain of fatigue on physical exertion? If diabetes is only insufficient insulinism, nearly 100 per cent recovery should be expected in the uncomplicated case. Children apparently satisfy this demand. The source of energy may be a factor. Benedict and his co-workers [3] have shown that normal young men manifested a diminution of capacity for effective work while on a diet which reduced their weight from 10 to 15 per cent but that there was a return of this capacity when they were placed on a maintenance diet. This group was compared with normal persons who were taking an unrestricted diet.

There is still no unanimity of opinion concerning the proper type of diet on which these patients thrive best. Joslin [4] attempts to give his patients 100 Gm. of carbohydrate, about 1 Gm. of protein and 2 Gm. of fat per kilogram, keeping the insulin dosage lower than some others employ. Sansum and his co-workers [5] have reported improvement in physical and mental activity from the use of a normal diet, i. e., high carbohydrate, low fat; but with this they give large amounts of insulin, from 100 to 200 units daily. Others adhere to the low carbohydrate and high fat regimen as was advocated by Newburgh and Marsh [6] and by Petrén.[7] In my practice, higher carbohydrate diets are used than formerly because they are more palatable; patients do not tire of them because they permit of more variations and there is not as great a temptation to overstep; but I have not had the courage to apply Sansum's method to any number of patients. There likewise is a lack of opinion among the physiologists concerning the rôle of carbohydrate and fat in energy metabolism. There are those who believe that fat must be converted into dextrose before it becomes a source of energy, while others hold that fat may be used as such without this conversion. The diabetic patient may have some inherent perversion in his metabolism whereby he stores fat with greater ease instead of using it as energy. The great tendency for the diabetic patient treated with insulin to become fat is common experience, and obesity as a forerunner of diabetes is an outstanding association. Diabetic children are not usually overweight, as has been pointed out by Joslin; [8] my juvenile patients do not get fat with insulin. As such patients do not manifest any reduction in physical energy, it is possible that they use their muscle glycogen for energy rather than converting it into fat, in contrast to some adults.

SUMMARY

It appears that the adult diabetic patient who is treated with insulin compares quite favorably with the normal individual with the exception that the majority have the subjective impression that they are not capable of normal physical effort without fatigue. Children apparently do not show this physical limitation. Early recognition and adequate treatment are the most important factors in obtaining good results.

100 High Street.

ABSTRACT OF DISCUSSION

DR. S. S. ALTSHULER, Ann Arbor, Mich.: Fatigability is probably the most common symptom of the untreated diabetic patient and it usually disappears when the diabetic condition is controlled, whether by diet alone or by diet and insulin. The explanation of this fatigability may be that the patient does not receive sufficient available calories in his diet for his required metabolism, and therefore loses weight and energy and tires easily. In the treatment of these patients at the University Hospital the principles of the high fat diet, introduced by

3. Benedict, F. G.; Miles, W. R.; Roth, Paul; and Smith, H. M.: Human Vitality and Efficiency Under Prolonged Restricted Diet, publication 280, Carnegie Institution of Washington.

4. Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1928, p. 591.

5. Sansum, W. D.; Blatherwick, N. R., and Bowden, Ruth: The Use of High Carbohydrate Diets in the Treatment of Diabetes Mellitus, J. A. M. A. **86**: 178 (Jan. 16) 1926.

6. Newburgh, L. H., and Marsh, P. L.: High Fat Diet in the Treatment of Diabetes Mellitus, Arch. Int. Med. **31**: 455 (April) 1923.

7. Petrén, Karl: Studies on Diabetes, Endocrinology **8**: 189 (March) 1924.

8. Joslin: Treatment of Diabetes Mellitus, p. 825.

Newburgh and Marsh, have been used since 1918. The aim is to furnish a diet containing a sufficient number of calories to maintain the individual following his usual occupation at approximately 10 per cent less than the standard weight for age, sex and height. We consider the diet as maintenance only when the weight is maintained at the desired level with the patient performing his usual work and activity. In reviewing 1,520 cases treated over a period of seven years, I found that the average caloric value of the diet necessary for maintenance was 2,500 calories. It may be possible to maintain an individual's weight on a diet lower in calories, but in order to do so the activity must be diminished; and Dr. Bowen has pointed out in his cases that "when the occupations were compared, it was found that all except two of those who felt no fatigue had sedentary occupations." I take it that this group maintained their weight. The diet as a source of energy must therefore fulfil two requirements — to maintain the desired weight and to maintain strength to perform the usual activity. On the other hand, if the patient is overweight, the caloric intake is limited and the patient must use his body fat as a source of energy until a desired weight level is reached. The carbohydrate content of our diets averages 65 Gm. The average amount of fat used is 220 Gm. and the protein averages 60 Gm. The available dextrose content of these diets averages 125 Gm. and the fatty acid dextrose ratio is 2.0. Dr. Bowen has pointed out that many of his patients who became fatigued easily experienced insulin reactions during exercise and that a disturbance of mental acuity occurred frequently during these reactions. May there not have been a certain number who had the sense of fatigability and a disturbance of mental activity due to a hypoglycemia, the result of too much insulin, which was not severe enough to manifest definite clinical symptoms? In our series of 1,520 cases, insulin was used in only 361, or 23.7 per cent. Forty per cent of the patients had a tolerance not above 125 Gm. of dextrose and yet were able to take a maintenance diet without the aid of insulin. Had these 40 per cent been given a maintenance diet with a higher carbohydrate content, they would all have required insulin.

DR. A. A. HEROLD, Shreveport, La.: Dr. Bowen dealt with the subject of the economic status of diabetic patients and refers especially to the benefit derived from insulin. I will report a case in which insulin almost proved fatal. The patient was a young man, a real estate agent, with a moderately severe diabetes. He had been under the treatment of some good clinicians who had prescribed a definite diet and insulin. He progressed well until he began to have convulsions early every evening. The attending physician called a neurologist in consultation. They decided that the young man was having epileptic seizures. He had to give up his occupation. It was dangerous for him to drive his car. They asked me to see him. I told him it was no use to see him until he had one of his seizures. One evening at 10 o'clock, his brother-in-law came for me. I found him in a condition resembling epilepsy more than hypoglycemia. I told the family I could not tell much about him without having blood sugar estimates. I had him report the next day and gave instructions to continue insulin and food as heretofore. At 8 o'clock in the morning he had a blood sugar of 290 mg. per hundred cubic centimeters. At 4 o'clock in the afternoon it was down to 0.046. At 8 p. m., after having taken the evening dose of insulin and eaten supper, his blood sugar was down to 0.028, showing conclusively that these were hypoglycemic reactions. At the time the last blood sugar was taken, he was so dizzy he was seeing double. I immediately secured an orange for him and had him go home and eat more. Under readjustment of his diet and readjustment of insulin he has been able to resume his work. It was just one of those cases of faulty management.

The Scientist.—The popular conception of a scientist as a man who works in a laboratory and who uses instruments of precision is as inaccurate as it is superficial, for a scientist is known, not by his technical presses, but by his intellectual processes; and the essence of the scientific method of thought is that it proceeds in an orderly manner toward the establishment of a truth.—Peabody, F. W.: Doctor and Patient, New York, Macmillan Company, 1930.

BRAIN ABSCESS

A REVIEW OF TWENTY-EIGHT CASES WITH COMMENT ON THE OPHTHALMOLOGIC OBSERVATIONS *

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Abscess of the brain originates from septic encephalitis and is not considered amenable to surgical treatment until encapsulation of the abscess takes place. Many of the symptoms after encapsulation, as well as the results of treatment, will depend either on the persistence of the original encephalitis or on a recrudescence of the condition. The mild disturbances of the so-called latent stage of many abscesses may be explained by the disappearance of the diffuse inflammation that characterizes the stage of development and capsule formation.

A successful outcome in the treatment of brain abscess depends largely on the removal of the localized infection without the production of an extensive encephalitis. Successful operative treatment, particularly of deeply seated abscesses, must strictly conform to this principle.

A diagnosis of brain abscess is rarely made in the first stage of its development, but reasonable grounds for diagnosis after encapsulation may be found in the history of a previous infection of the mastoid or paranasal sinuses, provided, of coure, there is evidence of a localized intracranial disturbance. The history of a chill during the primary stage, emphasized by McEwen [1] and others, has been so frequently lacking in my cases that I do not consider it an important feature of the diagnosis. The symptoms of the first stage, or the stage of diffuse encephalitis, are frequently obscured by, or erroneously attributed to, the antecedent sinus or mastoid disease, which supplies the focus of infection in the brain. Careful observation in such cases will show signs of intracranial involvement persisting and even increasing after operation on the sinus or mastoid, and this is not consistent with uncomplicated infection of these bony cavities.

It is sometimes very difficult to decide between tumor (particularly of the frontal lobe) and abscess. On three occasions I have made an unnecessary osteoplastic flap on the diagnosis of frontal lobe tumor, when an abscess was the responsible lesion. In rare cases an abscess is successfully removed in its capsule in the belief that it is a tumor. The danger of encephalitis and the risk of rupture during removal appear too great to allow this to be a premeditated method of dealing with brain abscess. In some cases without a definite history of sinus infection, or in which there is bilateral infection of the sinuses, a ventriculogram may be necessary for diagnosis and localization of the abscess.

Study of the ophthalmologic observations in my series of twenty-eight cases has been of some interest. Choked disk has been found to occur in brain abscess with about the same frequency as in brain tumor. In ten cases of frontal lobe abscess, choked disk was present in seven. The swelling of the disks reached 6, 5 and 4 diopters in three patients; there was obscuration of the disk margins in two, and in only one case was the nerve head

* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. McEwen, William: Pyogenic Infective Diseases of the Brain and Spinal Cord, New York, Macmillan Company, 1893.

normal. The condition of the nerve heads in this small series is contrasted with the observation by Eagleton [2] of only three cases of definite nerve head changes in the records of 100 cases of frontal lobe abscess which he examined. Of the twelve temporal lobe abscesses in my series, there were seven cases with choked disk, and of these, three showed an elevation of from 4 to 5 diopters. The disks were normal in the three cases of right parietal abscess, and in the three cases of cerebellar

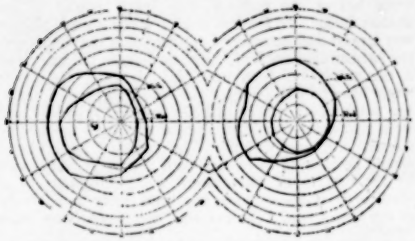

Fig. 1.—Fields in case 12: Extensive right field defect due to abscess of right temporal lobe. Drainage of ruptured abscess after onset of diffuse, purulent meningitis.

abscess the disks were slightly blurred before operation in two, and were normal in one case until some weeks after the operation, when papilledema developed. Lillie,[3] in 1928, stated that in no case of cerebellar abscess at the Mayo Clinic was there papilledema of more than 2 diopters. A high degree of choked disk is often found in cerebellar tumors, whereas a frontal lobe tumor of considerable size may be present in patients whose eyegrounds are entirely normal. In cerebellar abscess, the acuteness of the process and the early termination, either by drainage of the abscess or by the death of the patient, are probably responsible for the absence of any considerable papilledema which requires more time for its development.

It will thus be seen that there were nerve head changes in sixteen of the twenty-eight cerebral and cerebellar abscess cases before the patients came to operation. It cannot be said that the ophthalmoscopic examination furnished information of value beyond indicating an increase of general intracranial pressure. The finding of a choked disk in suspected abscess will supply confirmatory evidence of intracranial tension, in addition to that furnished by a slow pulse, dulness and the other signs of intracranial pressure. A study of the disks in brain abscess has been made the basis for the selection of the proper time for operation by Lillie, who in 1928 stated that when choked disk was advancing, as shown by repeated ophthalmoscopic examination, it is an indication that the encephalitis is active. Operations done during the stage of progressive swelling of the disks gave a high mortality, and the favorable time for operation, in his opinion, is when the swelling of the disks becomes stationary. This is an important observation, but its practical value is somewhat lessened by the possibility of sudden rupture of the abscess when intracranial pressure becomes so high as to produce choked disk. While it is true that the rupture of brain abscess is generally of late occurrence, such an unfortunate termination must be borne in mind, and I feel considerable anxiety over the postponement of operation when there is evidence of a high degree of intracranial tension. There appears to be no definite relation between the size of the abscess and the degree of choked disk. The greatest elevation of the disks in the series was found in some of the smallest abscesses, and the largest abscess (frontal) of the entire series was associated with normal eyegrounds. In the small encapsulated abscess, a high grade of choked disk is due either to persistence of encephalitis around the capsule or else to massive cerebral edema, such as is sometimes associated with brain tumor.

In the series reported, satisfactory study of the fields was made in only nine cases. The inability of the patient to cooperate in even rough tests was the usual cause of failure to make studies of the fields. Quadrant defects in abscesses of the temporal lobes should be found with as much frequency as in cases of temporal lobe tumors, and it is no doubt true that such defects would be found in these cases but for the intellectual defect and stupor so often present in cases of abscess. Homonymous hemianopia was found once on the right side (case 12) and once on the left (case 4). In the patient with a right homonymous hemianopia there were well marked left temporal lobe symptoms. This patient was not operated on until after the onset of diffuse, purulent meningitis from rupture of the abscess, although his hemianopic defect had been noted by Dr. Emory Hill some time before his admission to the hospital with meningitis. The patient with a left homonymous hemianopia was operated on in September, 1929. He had a small, thickly encapsulated right temporal lobe abscess. This case is of particular interest in that the examination made March 25, 1930, showed that the field defect was practically unchanged. There has been at intervals a small amount of seropurulent drainage from the incision. The persistence of the hemianopia raises a question as to whether the visual pathways were

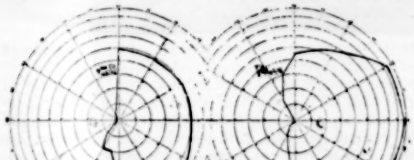

Fig. 2 (case 4).—Small, deep, thickly encapsulated right temporal abscess. Operation on right mastoid and lateral sinus seven months before. High grade of choked disk. Fields, six months later. Patient in excellent condition. Disks flat. Secondary atrophy. Left eye: vision uncorrected, 10/200; refraction corrected, 10/50 +; artificial light; cooperation fair. Right eye: vision, fingers at 6 feet; unimproved.

permanently harmed before the abscess was evacuated or whether there is a residual abscess of which the intermittent drainage acts as a safety valve. The patient is in excellent general condition, is at work, and suffers only occasionally with slight headache. If recovery of the lost field is to be expected after complete eradication of an abscess, the persistence of hemianopia in this case clearly indicates that the abscess is not relieved, and this observation may be of great importance in the future management of the case.

2. Eagleton, W. P.: Brain Abscess, New York, Macmillan Company, 1922.

3. Lillie, W. I.: The Clinical Significance of Choked Disks Produced by Abscess of the Brain, Surg. Gynec. Obst. 47: 405 (Sept.) 1928.

The ocular muscle palsies are of little importance in the series. In one frontal and two temporal lobe abscesses with considerable papilledema, bilateral paralysis of the external rectus was found, but this is also a common finding in high intracranial pressure from tumor. A right ptosis in one frontal lobe abscess was observed, and a dilated, fixed pupil in another patient was found, with an abscess in the same location. Right ptosis developed in a patient with an abscess of the right lobe of the cerebellum. It will thus be seen that the ocular muscle palsies in this series furnished little information except in the patient whose pupil was dilated and fixed. As this patient was in coma and satisfactory study could not be made, the discovery of a dilated pupil was a finding of considerable localizing value.

There is still much difference of opinion as to the best method of treating an encapsulated brain abscess. The osteoplastic flap has its adherents, while good results are claimed for tapping, with inspection and packing of the cavity of the abscess with gauze. The more radical procedure of excision of the overlying cortex to allow the abscess wall to extrude itself has also been advocated. Much emphasis has been placed on the advantage of certain types of drainage material or tubes. Dandy [4] relies on single or repeated tapping without drainage of any kind for the relief of abscess, and while this procedure may appear to some to be inadequate, it should be remembered that patients who die after operation for brain abscess generally die because of encephalitis produced by the efforts at drainage.

The most dangerous type with which I have had to deal is the thickly encapsulated and deeply seated small abscess. There does not appear to be any form of drainage that will adequately meet the needs of the situation brought about by these abscesses. The abscess wall in such cases is penetrated with difficulty by a ventricular needle, and it is almost impossible to insert even a small, soft rubber catheter into the small abscess cavity without tearing the wall from its mooring of unprotected brain tissue. If effort to drain the abscess is persisted in, there may be considerable extravasation of pus from the abscess into the surrounding brain, with an extensive encephalitis as an inevitable result. In the small abscesses with high intracranial pressure (and they are not infrequent), I believe that Dandy's method of tapping is to be preferred, but unless a subtemporal decompression is done at the same time, the patient may be overcome by the rise of intracranial pressure. In this series an effort has been made at some time, in every case, to drain the abscess with the eye end of a small, soft rubber catheter. If the abscess wall is dense, and difficulty is experienced in inserting the catheter after removal of pus with a ventricular needle, I have closed the wound securely and a second attempt at drainage has been made in about a week. In one case, three such attempts were made at intervals of about a week before the catheter was finally placed in the abscess cavity. In a recent case in which a small abscess was tapped and permanent drainage was not attempted, the patient died suddenly from medullary failure. Had a decompression been done in this case, the result might have been different. The simple method of drainage with a soft rubber catheter inserted promptly and with gentleness should produce a minimum amount of trauma and encephalitis. The catheter once placed should be allowed to remain until extrusion takes place by the healing of the abscess wall. Drainage by a small soft rubber catheter has been fairly satisfactory in my series, and I believe that the results have been better than could have been obtained by any other method. The technic of drainage has been fully described in a previous paper.[5] For some days following operation, even after the evacuation of a considerable quantity of pus, the patient often shows signs of increased pressure and the swelling of the disks may increase. The intravenous injection of hypertonic dextrose solution is helpful in meeting this rebound of pressure which often follows evacuation of the abscess.

TABLE 1.—*Summary of Ophthalmic Observations*

Location	Number	Disks		Fields		Ocular Muscle Palsies	
Right frontal	8	Choked, from 1 to 6 D.	5	Impossible in	2	Dilated, fixed right pupil	1
		Blurring	2	Concentrically contracted	2	Ptosis, right	1
		Normal	1	Normal	3	Bilateral external rectus paralysis	1
						None	5
Left frontal	2	Choked, 1 D.	2	Normal	2	None	2
Right temporal	7	Choked, 5 D.	1	Left homonymous hemianopia persisting 6 months after apparent recovery	1	None	7
		Choked, 4 D.	1				
		Choked, from 1 to 2 D.	1				
		Blurring	1				
		Normal	3				
Left temporal	5	Choked, 5 D.	2	Right homonymous hemianopia	1	Bilateral external rectus palsy	2
		Choked, 1 D.	1			None	3
		Normal	2				
Parietal (right)	3	Pallor	1	No defect	3	None	3
		Normal	2				
Cerebellar (right)	3	Slight blurring	2	No defect	3	Ptosis (right)	1
		Normal before operation; later, choked disk, 3 D.	1			None	2

The results of operation in this series of twenty-eight cases, while generally satisfactory, were disappointing in some instances. Patient 5 had a small, thinly walled, deep temporal lobe abscess on the right which was easily drained in the usual way. No great apprehension was felt at the time as to his recovery. In seventy-two hours he developed a fulminating meningitis from rupture of the abscess into the right lateral ventricle. This was somewhat surprising in view of the free escape of pus from the abscess when drainage was instituted. Autopsy showed that only a thin veil of tissue had separated the abscess from the ventricle.

Patient 19 had a deeply seated small frontal lobe abscess from which about a drachm of pus was removed. There were clinical signs of high intracranial

4. Dandy, W. E.: Treatment of Chronic Abscess of the Brain by Tapping, J. A. M. A. 87: 1477 (Oct. 30) 1926.

5. Coleman, C. C.: The Treatment of Abscess of the Brain, Arch. Surg. 18: 100-116 (Jan., part 1) 1929.

tension but without choked disk. It was not believed that the abscess could be drained satisfactorily, so simple tapping was done and the wound tightly closed. The patient did well for a few days and then suddenly died from respiratory failure. The abscess in this case arose from a chronic empyema with a persistent sinus, and this was the only infection discovered in the history or on examination. In view of the metastatic type of infection and the marked cerebral compression, there must have been extensive encephalitis or possibly multiple abscesses. Permission for an autopsy was not obtained.

The patients who recovered in this series appear to be normal in every respect, with the exception of the residuals noted in table 2. The freedom from convulsions or mental impairment after recovery from the abscess is worthy of note. If the abscess is so located as not to endanger certain important functional areas, the late residuals are likely to be few and unimportant. A brief summary of the operative result in this series is given in table 2.

TABLE 2.—*Operative Results in Brain Abscess**

Name	Age	Sex†	Operation	Location	Infection	Results
1. K.	12	♂	Yes	Right temporal lobe	Staphylococcus	Recovery
2. S.	14	♀	Yes	Right temporal lobe	Staphylococcus	Recovery
3. H.	9	♀	Yes, 2	Right temporal lobe	Staphylococcus albus	Recovery
4. P.	45	♂	Yes, 5	Right temporal lobe	Nonhemolytic streptococcus	Hemianopia persisting 6 months after operation
5. C.	21	♂	Yes	Right temporal lobe	Thin yellow pus; smear and culture negative	Death from rupture of abscess into ventricle
6. S.	9	♂	Yes	Right temporal lobe	Nonhemolytic streptococcus	Recovery
7. B.	58	♂	Yes	Right temporal lobe	Nonhemolytic streptococcus	Recovery
8. W.	18	♀	Yes	Left temporal lobe	Nonhemolytic streptococcus	Recovery
9. B.	9	♀	Yes, 2	Left temporal lobe (metastatic)	Enterococcus	Death
10. M.	14	♂	Yes	Left temporal lobe	Undetermined	Recovery
11. P.	39	♂	Yes, 2	Left temporal lobe (3)	Streptococcus	Recovery
12. L.	43	♂	Yes	Left temporal lobe	Staphylococcus	Diffuse meningitis before operation; death
13. L.	26	♂	Yes, 3	Right frontal lobe	Staphylococcus	Recovery
14. G.	19	♂	Yes	Right frontal lobe	Staphylococcus	Recovery
15. H.	25	♂	Yes	Right frontal lobe	Staphylococcus	Meningo-encephalitis; death
16. S.	11	♂	Yes	Right frontal lobe	Nonhemolytic streptococcus	Recovery
17. C.	4	♀	Yes	Right frontal lobe (2 large abscesses)	Staphylococcus aureus	Death
18. G.	14	♀	Yes, 2	Right frontal lobe	Staphylococcus albus	Death 3½ months later; after apparent recovery for 3 mos.
19. H.	40	♂	Yes	Right frontal lobe	Undetermined	Death from compression; no autopsy
20. M.	23	♂	Yes	Right frontal lobe (small)	Culture negative	Death
21. P.	25	♂	Yes, 3	Left frontal lobe	Staphylococcus	Recovery
22. W.	14	♂	Yes	Left frontal lobe	Staphylococcus	Recovery
23. H.	1½	♀	Yes	Right parietal lobe	Staphylococcus aureus	Recovery
24. W.	5	♂	Yes	Right parietal lobe	Streptococcus	Recovery; hemiplegia
25. T.	30	♀	Yes, 3	Right parietal lobe	Streptococcus	Recovery; jacksonian attacks; hemiplegia
26. M.	47	♂	Yes, 2	Right cerebellar lobe	Staphylococcus aureus	Death
27. B.	36	♂	Yes	Right cerebellar lobe	Culture negative	Recovery
28. W.	38	♂	Yes	Right cerebellar lobe	Culture negative	Recovery

* Patients 12, 17, 20, 27 and 28 were operated on by my associate, Dr. J. G. Lyerly.
† In this column, ♂ indicates male; ♀, female.

McEwen, from his large and successful experience with brain abscess, regarded it as one of the most favorable of cerebral lesions. This optimism has been accepted with a great deal of reservation, if not actual incredulity. However, if one means by abscess the solitary, encapsulated abscess surgically treated without producing extensive encephalitis, this opinion of McEwen is justified.

501 East Franklin Street.

ABSTRACT OF DISCUSSION

DR. EMORY HILL, Richmond, Va.: The low mortality of Dr. Coleman's patients represents a marked improvement over most of the statistics. While they cover a limited group of solitary abscesses, they do show the possibility of a thoroughness in methods of investigation and a conservative precision in operative technic which saves lives that would formerly have been lost.

I would say that the ophthalmologic study of brain abscess cases is of distinct, but limited, value. The information obtained is of the same type as in brain tumor cases, but more often negative. It helps to substantiate the diagnosis of increased intracranial pressure; it helps to localize a space-restricting lesion; but it does not furnish a precise neurologic diagnosis.

DR. CHARLES E. DOWMAN, Atlanta, Ga.: Neurologic surgeons generally agree that it is a great mistake to attempt operation on an acute brain abscess before the period of encapsulation. These cases are really cases of localized, suppurative encephalitis; the patients usually have fever and leukocytosis and are quite ill. Operation at this stage usually does more harm than good. The puncture that would be necessary in an attempt to find the abscess might spread the encephalitis to other parts of the brain. I was rather struck with the high mortality following operations for brain abscess reported in another section. If I recall correctly, nineteen patients out of twenty-five died. I do not know why the mortality was so high, unless perhaps some of the patients were operated on during the acute stage of the brain abscess. I am quite sure that is a mistake, and if any thing is to be accomplished by draining it will be necessary to wait for the period of encapsulation, at which time there is usually no fever and no leukocytosis.

DR. ERNEST SACHS, St. Louis: The neurologic surgeons have been familiar with the results of Dr. Coleman for a number of years and realize that there are three reasons why he has such excellent results. They are the only results I am familiar with that compare favorably with McEwen's. In the first place, he does not attempt to operate on brain abscess in the acute stage. He waits as long as possible, giving the abscess opportunity to become well encapsulated. In the second place, he drains through as small an opening as possible. And in the third place, he believes what all neurologic surgeons believe, that brain abscesses belong to the neurologic surgeon, not to the otologist. The otologist goes on the principle that he will drain the abscess through an infected mastoid wound, and I believe that is absolutely contrary to all sound surgical principles. In searching for an abscess one should go through a potentially clean field, and if one does not find the abscess at least no

harm has been done, and if it is drained through that field there is no chance of getting a septic encephalitis, as one does if one goes through a dirty, infected mastoid wound. One other point that I think is of importance and which I do not think Dr. Coleman referred to is that in a certain number of abscesses one gets good results by aspirating the abscess and not draining it at all. Sometimes one has to aspirate them a number of times. I have had four such cases, in three children and one adult. The abscesses in the three children have been aspirated and have been cleared up for three years without any evidence of recurrence. Two of them were aspirated through the ventricle. The needle was inserted and the abscess evacuated, and when the needle was withdrawn the ventricle, which had been compressed, became dilated, for some cerebrospinal fluid was obtained. I think a certain number of cases of brain abscess can be treated by aspiration without putting in a drain at all.

DR. WALTER R. PARKER, Detroit: Through the courtesy of Dr. Peet of the neurosurgical department at the University of Michigan, I am privileged to report the eye observations in the last twenty-five cases of proved brain abscess:

Location	Number	Disk Choked		Neuro-retinitis	Normal
		Number	Per Cent		
Frontal lobe.....	12	8	66.6	1	3
Temporal lobe.....	4	2	50.0	1	1
Parietal lobe.....	5	2	40.0	1	2
Cerebellar lobe.....	4	2	50.0	1	2
Total	25	14	56.0		

Owing to the lack of cooperation on the part of the patients, the observations as regards the visual acuity and fields are lacking in many cases. One patient with frontal lobe abscess had an enlarged blind spot, and doubtless others would have shown the same defect if a careful field had been possible. The sixth nerve was paralyzed in a case of left temporal abscess, and in one right cerebellar case there was a loss of conjugate movement to the right. Six of these patients were under observation at the same time, all with choked disk. It seemed to afford a good opportunity to check up one's ability to tell whether there were changes in the fundus that would suggest the presence of brain abscess. We went over them carefully, and I am frank to confess that as far as I was concerned I could not see anything in these cases that would suggest the presence of brain abscess. In four cases I would have said frankly that I thought they were cases of tumor papilledema. In two cases there was vague involvement of the retina in each case and, in one, hemorrhages. One could best be described as having the appearance of cases we sometimes see of nephritis, without the advanced arteriosclerotic changes. The patient had edema, hemorrhage and swollen disks, 2 or 3 diopters. If that case was not nephritis or arteriosclerosis, my next guess would be brain abscess. I have made one such prediction that happened to be correct.

DR. C. C. COLEMAN, Richmond, Va.: I did not attempt to go into the details of the technic. This has been fully described in two previous publications on the subject. An important point in the treatment of abscess is to delay operation until the abscess has become encapsulated. It has been estimated that at least three weeks is required for encapsulation. It is known that the initial stage of brain abscess is encephalitis, and, if the capsule fails to form, the patient has no chance for recovery. After the abscess becomes encapsulated and evacuation is brought about without producing encephalitis around the abscess, the patient has a reasonably good chance. Aspiration of the abscess, as proposed by Dr. Dandy, is an important contribution to the treatment, and in certain cases aspiration is all that can be done. As a rule, however, I try to carry out a plan of treatment with simple drainage, by a soft rubber catheter placed in the abscess cavity with the minimum amount of trauma. There is one defect of any form of operation for brain abscess, and that is a possible incomplete evacuation due to collapse of the capsule and the formation of pockets. One cannot always say when a patient who has been operated on for brain abscess has been cured. I have known two cases in which for some time there were no symptoms, and yet the abscess had not been entirely eradicated.

ACAPNIA AS A FACTOR IN POST-OPERATIVE SHOCK, ATELECTASIS AND PNEUMONIA*

YANDELL HENDERSON, PH.D.
NEW HAVEN, CONN.

It is now coming to be an accepted fact that atelectasis,[1] collapse of part or all of a lung, frequently occurs after major surgical operations. The evidence is rapidly becoming conclusive also that deep breathing induced by inhalation of carbon dioxide is effective in preventing and overcoming atelectasis.[2] This inhalation thus prevents the postoperative pneumonia [3] which sometimes develops from atelectasis and is still one of the principal hazards of surgery.

The mortality from postoperative pneumonia is estimated by several independent investigators [4] in different countries at about four deaths for each thousand major surgical operations. Atelectasis is far more frequent. In some degree it occurs in at least one case after each ten operations, or even after each five. Indeed, careful examination shows its primary stage after nearly all operations of some types.[5] It may follow local and spinal as well as inhalational anesthesia. It is largely independent of direct irritation of the lungs by the anesthetic or of aspiration from the mouth. The term "ether pneumonia" is a relic of the time when anesthesia methods were crude. The erroneous conception indicated by this term concealed the lack of that knowledge which roentgenograms of the chest now afford. Coryllos and Birnbaum [6] have demonstrated experimentally that postoperative pneumonia may begin with pulmonary occlusion and atelectasis; for, if pathogenic organisms happen to be present, they find in any atelectatic part of a lung conditions favorable to their growth.

Whenever any part of a lung is completely shut off, atelectasis develops.[7] The absorption of the air from the occluded lobule, lobe or lung is explicable wholly by the diffusion of gases. It is produced, as will be

* From the Laboratory of Applied Physiology, Sheffield Scientific School, Yale University.

1. Henderson, Yandell; Coryllos, P. N.; Holmes, G. W., and Scott, W. J. M.: Symposium on Atelectasis and Pneumonia, J. A. M. A. **93:** 96 (July 13) 1929.

2. Scott, W. J. M., and Cutler, E. C.: Postoperative Massive Atelectasis, J. A. M. A. **90:** 1759 (June 2) 1928. Sise, L. F.; Mason, R. L., and Bogan, I. K.: Prophylaxis of Postoperative Pneumonia: Preliminary Report of Some Experiments After Upper Abdominal Operations, Anesth. & Analg. **7:** 187 (May-June) 1928. Graham, A. E., in discussion on Muller, G. P.; Overholt, R. H., and Pendergrass, E. P. (footnote 5). Dzialoszynsky, A.: Apparatur zur Kohlensäureinhalation und bildliche Darstellung der Kohlensäureanwendung am Kranken, Deutsche Ztschr. f. Chir. **205:** 22, 1927. Fischer, Erich: Prevention of Postoperative Lung Complications by Inhalation of Carbon Dioxide, Zentralbl. f. Gynak. **52:** 2010 (Aug. 11) 1928. Doppler, Karl: Die Anwendung der Kohlensäureinhalation im chirurgischen Betrieb, speziell bei Schädigungen, des Atemzentrums und beim operativen Schock, Deutsche Ztschr. f. Chir. **219:** 308, 1929.

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4. Smith, M. K., and Morton, P. C.: Postoperative Pneumonia, Arch. Surg. **18:** 2167 (May) 1929. Miller, A. H.: Postoperative Complications in 5,000 Cases of Ether and Nitrous Oxide Anesthesia, Rhode Island M. J. **10:** 181 (Dec.) 1927; abstr. J. A. M. A. **90:** 240 (Jan. 21) 1928. Protopopoff, S.: Postoperative Pneumonia, Russkaia Klinika **5:** 561 (April) 1926; abstr. J. A. M. A. **87:** 212 (July 17) 1926.

5. Muller, G. P.; Overholt, R. H., and Pendergrass, E. P.: Postoperative Pulmonary Hyperventilation, Arch. Surg. **19:** 1322 (Dec.) 1929.

6. Coryllos, P. N., and Birnbaum, G. L.: Obstructive Massive Atelectasis of the Lung, Arch. Surg. **16:** 501 (Feb.) 1928; Bronchial Obstruction: Its Relation to Atelectasis, Bronchopneumonia and Lobar Pneumonia, Am. J. Roentgenol. **22:** 401 (Nov.) 1929; Lobar Pneumonia Considered as Pneumococcic Lobar Atelectasis of the Lung; Bronchoscopic Investigation, Arch. Surg. **18:** 190 (Jan.) 1929; Bull. New York Acad. Med. **4:** 384 (March) 1928.

7. Pasteur, W.: Massive Collapse of the Lung, Lancet **2:** 1351, 1908; **2:** 1080, 1910. Jackson, Chevalier; and Lee, W. E.: Acute Massive Collapse of the Lungs, Ann. Surg. **82:** 364 (Sept.) 1925.

shown in a later paper, by the low total gas pressure in venous blood.

But there is no obvious reason why occlusion so often develops from anesthesia and surgical operation. This step in the process is still nearly as much of a puzzle as it was sixty-five years ago. Why, for instance, in the celebrated case of General Stonewall Jackson, did atelectasis and pneumonia follow the amputation of an arm? My purpose in this paper is to show that the answer is to be found in the acapnial position of the lungs as a consequence of pain, anxiety, operation and anesthesia.

THE ACAPNIAL POSITION OF THE LUNGS

Twenty-five years ago I presented, before the American Physiological Society in 1905 and the British Medical Association in 1906, the hypothesis that acapnia [8] is a factor in the depression of vitality, especially in the functions of respiration and the circulation, after operation and anesthesia. This theory was conceived even before Haldane's [8a] classic demonstration of the normal control of respiration by carbon dioxide and was published only a few months later. The acapnia theory has a firm foundation in the modern conception of respiration; it has itself also contributed largely to the establishment of that conception and its applications: such as the initiation of respiration at birth.[9]

During its first years the acapnia theory was accepted by only a few clinicians [10] and met with vigorous criticism from leading physiologists in America. More recently it excited equally vigorous theoretical objections, especially as to its therapeutic application in anesthesia and asphyxia, from biochemists.[11] Objections based on theoretical considerations, however, have now been refuted in the final test; for the theory is established by the increasing use of carbon dioxide inhalation after anesthesia and surgical operations and in the treatment of asphyxia.[12] In fact, clinical experience is demonstrating that carbon dioxide is the specific preventive of postoperative atelectasis and pneumonia: as specific as the appropriate antitoxins are for tetanus or diphtheria.

The acapnial position of the lungs may be described as one near or below that of normal expiration, a condition of prolonged deflation. As long as this position is maintained the thoracic, diaphragmatic and abdominal movements of breathing are carried on at such a shallow level that inspiration inflates the lungs only slightly, and expiration deflates them almost as completely as the deepest voluntary expiration. This deflation leaves some parts of the lungs unventilated, thereby permitting an accumulation of mucus, a blocking of airways, and the initiation of atelectasis.

The influence of carbon dioxide, excess and deficiency, on the position of the thorax and lungs, and likewise on the circulation, is illustrated by the following observations:

Many years ago I [13] found that, after voluntary forced respiration or "overbreathing" with excessive elimination of carbon dioxide, not only does apnea result, as Haldane had observed, but the chest remains in a position near that of expiration. It is so near expiration that, when the manual prone pressure method of artificial respiration is applied to a man in this condition, little additional air can be squeezed out of the lungs. When the compression by the operator is released, the respiratory muscles have so little tonic resilience that very little air is drawn in. In other words, in this artificial, partial and temporary form of acapnia the chest remains continuously in a position of expiration with the lungs largely deflated.

Another observation, in which the conditions are the exact opposite of those just described, shows by contrast the significance of this continuance of the chest in expiration. This observation is that, when carbon dioxide is inhaled in sufficient percentage to increase the volume of respiration, the subject not only breathes more per minute but breathes with continually fuller lungs than ordinarily. This occurs also under moderate physical exercise, for respiration is then influenced by the carbon dioxide produced in the body itself. The breathing is deeper and the average position of the thorax is markedly more inspiratory. The influence of carbon dioxide in this respect is the antithesis of that of the acapnia consequent on operation, anesthesia, anxiety and pain. The contrast indicates strongly that the position of the thorax under the latter conditions is essentially acapnial.

A third observation or group of observations has shown that in nearly all cases after operation and anesthesia, particularly after operation in the upper part of the abdomen, there is a marked decrease in the vital capacity of the lungs. There is an equally notable limitation in the inspiratory movement of the diaphragm. These conditions have been described by many observers, notably Churchill and McNeil,[14] Powers,[15] Sise, Mason and Bogan,[2] and Head.[16] They have shown that on the first day after an operation the vital capacity is often reduced to one third of the preoperative volume. This reduction occurs even when there is no obstruction to respiration by splinting, sutures or band-

8. Henderson, Yandell: The Cause and Phenomena of Surgical Shock (Probably Due to Diminished CO_2 Content of the Blood), Proc. Am. Physiol. Soc., December, 1905; Am. J. Physiol. **15**, 1906, Proc. xviii); Henderson, Yandell: Acapnia as a Factor in Shock, Brit. M. J. **2**: 1812, 1906; Fatal Apnea and the Shock Problem, Bull. Johns Hopkins Hosp. **21**: 235 (Aug.) 1910; Acapnia and Shock: I. Carbon Dioxide as a Factor in the Regulation of the Heart Rate, Am. J. Physiol. **21**: 126 (Feb.) 1908; II. A Principle Underlying the Normal Variations in the Volume of the Blood Stream, and the Deviation from this Principle in Shock, ibid. **23**: 345 (Feb.) 1909; III. Shock After Laparotomy: Its Prevention, Production and Relief, ibid. **24**: 66 (April) 1909; IV. Fatal Apnea After Excessive Respiration, ibid. **25**: 310 (Feb.) 1910; V. Failure of Respiration After Intense Pain, ibid. **25**: 383 (Feb.) 1910. Henderson, Yandell; and Scarbrough, M. M.: VI. Acapnia as a Factor in the Dangers of Anaesthesia, ibid. **26**: 260 (June) 1910; VII. Failure of the Circulation, ibid. **27**: 152 (Nov.) 1910. Henderson, Yandell; and Harvey, S. C.: VIII. The Venopressor Mechanism, ibid. **46**: 533 (Aug.) 1918.

8a. Haldane, J. S., and Priestley, J. G.: Regulation of the Lung Ventilation, J. Physiol. **32**: 225 (May 9) 1905.

9. Henderson, Yandell: The Prevention and Treatment of Asphyxia in the New-Born, J. A. M. A. **90**: 583 (Feb. 25) 1928. Cruickshank, J. N.: Child Life Investigations: The Causes of Neonatal Death, Medical Research Council, Special Report Series 145, H. M. Stationery Office, London, and British Library of Information, 5 East Forty-Fifth Street, New York.

10. Gatch, W. D.: Nitrous Oxide-Oxygen Anesthesia by the Method of Rebreathing, J. A. M. A. **54**: 775 (March 5) 1910; The Use of Rebreathing in the Administration of Anesthetics, ibid. **57**: 1393 (Nov. 11) 1911. Cotton, F. J.: Acapnia: Its Surgical Importance, Boston M. & S. J. **167**: 432, 1912. Levi, Ettore: The Clinical Use of Carbon Dioxide with Oxygen, J. A. M. A. **58**: 773 (March 16) 1912. The writer takes this occasion to express his deep appreciation of the support and encouragement early given him in the development of the acapnia theory by the late Dr. W. S. Halsted.

11. An answer to these objections is given by Henderson, Yandell: Physiological Regulation of the Acid-Base Balance of the Blood and Some Related Functions, Physiol. Rev. **5**: 131 (April) 1925.

12. Henderson, Yandell: The Dangers of Carbon Monoxide Poisoning and Measures to Lessen These Dangers: Report 1 of the Committee on Poisonous Gases of the American Medical Association, J. A. M. A. **94**: 179 (Jan. 18) 1930.

13. Henderson, Yandell: Respiratory Experiments on Man, J. A. M. A. **62**: 1133 (April 11) 1914; Resuscitation Apparatus, ibid. **67**: 1 (July 1) 1916. Liljestrand, G.; Wollin, G., and Nilsson, J. O.: Untersuchungen über die Ventilation bei künstlicher Atmung beim Menschen, Skandin. Arch. f. Physiol. **29**: 198, 1913. Haldane, J. S.: Respiration, Yale University Press, 1922, pp. 50 and 52.

14. Churchill, E. D., and McNeil, D.: The Reduction in Vital Capacity Following Operation, Surg. Gynec. Obst. **44**: 483 (April, pt. 1) 1927.

15. Powers, J. H.: Vital Capacity: Its Significance in Relation to Postoperative Pulmonary Complications, Arch. Surg. **17**: 304 (Aug.) 1928.

16. Head, J. R.: The Effect of Operation on the Vital Capacity, Boston M. & S. J. **197**: 83 (July 21) 1927.

ages. While it may avoid pain, pain is not its cause; for, as Sise and his collaborators find, increased depth of breathing under inhalation of carbon dioxide often causes no pain in patients who without this inhalation exhibit acapnial breathing.

The most recent and complete demonstration of the acapnial position of the thorax is afforded by Muller, Overholt and Pendergrass.[5] They find that after operations in the upper part of the abdomen it is several days before the normal vital capacity returns. In roentgenograms the diaphragm is elevated toward the thorax at first 4.8 cm. on the right side and 3.5 cm. on the left above the preoperative position. There is also a narrowing of the intercostal spaces. These conditions are so common that Muller and his associates even consider them as "normal postoperative manifestations." Inhalation of carbon dioxide tends to relieve them and to increase the inflation of the lungs. Muller and his associates therefore define the continued deflation as due to "pulmonary compression and hypoventilation." They show roentgenographically that the condition may last for many hours and in some degree even for days after operation. There could scarcely be a clearer demonstration of the acapnial position of the lungs and of the opportunity thus afforded for occlusion of some areas within them to develop. Then must follow the absorption of air, atelectasis and, finally, if pathogenic organisms are present, postoperative pneumonia.

A fourth observation bearing on postoperative pulmonary deflation is that of Van Allen and his collaborators [17] on what they term "straining expiration." They point out that coughing cannot be effective unless the lungs are well inflated. The forcible expiration of a considerable amount of air is necessary to clear the air tubes of mucus. In acapnial deflation, coughing is therefore ineffective. The obstruction may become established and produce occlusion. These observers note also that the character of the respiratory movement in the groan of pain is that of an expiration which starts with the lungs only partially filled and deflates them down to a position of extreme expiration. They demonstrate physiologically intercommunications between different parts of any one lobe, which are sufficient to prevent atelectasis even when a lesser air tube is occluded, provided the breathing is deep enough to maintain the patency of the alveoli and of these connections. But these connections are closed in shallow breathing.

COINCIDENT DEPRESSION OF THE CIRCULATION

The deflation of the lungs is the result of the extreme depression of tonus in those muscles which normally keep the thorax expanded. This postoperative and acapnial atonic state applies, indeed, to all the muscles of the body. It affords an explanation not only of atelectasis but also of that depression of the circulation which is the most important feature of postoperative shock: a state characterized by gray cyanosis, shrunken cutaneous veins, absence of jugular pulsation and thready arterial pulse.

This depression and failure of the circulation is not due to weakening of the heart or vasomotor nervous system but to the decrease of the venous return to the right heart.[8] The nature of the venopressor mechanism involved has long been obscure. Even the extensive modern work of Krogh [18] and others on the capillaries, which has contributed so much to other problems, has thrown little light on what the venopressor mechanism is, or on how it fails in postoperative depression and shock. For sixty years or more the problem of surgical shock has been a subject of special study.[19] The underlying condition in shock has been referred successively, but unconvincingly, to failure of the heart, paralysis of the vasomotor system, relaxation of the capillaries and other causes. The most satisfying conception is that offered by Mautner and Pick,[20] who have recently shown that in some forms of experimental shock constriction of the hepatic veins dams the blood in the abdominal viscera. But it appears probable that the stagnation of the blood in the abdomen, in peripheral organs and in skeletal muscles after operation and anesthesia is mainly due to the same loss of tonus throughout the entire musculature of the body as that which is involved in the relaxation of the respiratory muscles.

Such a decrease of tonus is induced by experimental acapnia and is a marked feature of clinical shock and collapse. It involves a general decrease of pressure within all the cavities and tissues of the body. It thus permits stagnation of blood in the venules. It is overcome by the increase of muscular tonus throughout the body induced by carbon dioxide through its stimulation of the respiratory and other nervous centers influencing the skeletal musculature. It contributes to the development of atelectasis, for any slowing of the circulation decreases the oxygen content of venous blood, and the lowered gas pressure in this blood promotes the absorption of gases from any occluded space in the lung.

Acapnial depression and failure of the circulation is the exact opposite of what occurs in a normal man during exercise. The increased tonus and muscular contractions then augment the venous return to the heart.

THE ACAPNIA THEORY [8]

The most practical definition of acapnia is that of an acute condition involving disturbances and depression of various functions, all of which are relieved and restored to normal by inhalation of carbon dioxide. The conception of acapnia when first presented was that the depressions of function are simply due to an excessive blowing off of carbon dioxide by the overbreathing under pain and during the stage of anesthetic excitement. But this conception is certainly too narrow.

Overventilation, even in a normal man who voluntarily forces his breathing beyond his needs, induces in some degree the characteristic disturbances of respiration, circulation and other functions that are seen in postoperative depression and particularly in its extreme form, which is shock. A prolonged stage of excitement at the initiation of anesthesia, without rebreathing, has similar and more marked effects, such as fatal apnea. Acute disturbances of function of much the same character result from carbon monoxide poisoning [12] and are associated with asphyxia. Similar disturbances also occur after extensive hemorrhage.[21] The syndrome of surgical shock from trauma or prolonged anesthesia

17. Van Allen, C. M., and Adams, W. E.: The Mechanism of Obstructive Pulmonary Atelectasis, Surg. Gynec. Obst. **50**: 385 (Feb.) 1930. Van Allen, C. M., and Lindskog, G. E.: Obstructive Pulmonary Atelectasis: Problems of Pathogenesis and Clinical Management, Arch. Surg., to be published.

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19. Fischer, H.: Ueber den Shok, Volkmann's Sammlung klinischer Vorträge, 1870, number 10. Groeningen, G. H.: Ueber den Shock mit einem Vorwort von A. Bardeleben, Wiesbaden, 1885, p. 255. Crile, G. W.: Surgical Shock, 1899.

20. Mautner, H., and Pick, E. P.: Ueber die durch Shockgifte erzeugten Zirkulationsveränderungen: III. Der Einfluss der Leber auf Blutdruck und Schlagvolumen, Arch. f. exper. Path. u. Pharmakol. **142**: 271, 1929.

21. Henderson, Yandell, and Haggard, H. W.: Hemorrhage as a Form of Asphyxia, J. A. M. A. **78**: 697 (March 11) 1922.

without appreciable hemorrhage shows much the same phenomena. But studies through more than two decades have demonstrated that it is only after prolonged anesthetic excitement that overbreathing is the primary factor. In the development of shock, such overbreathing as occurs is secondary. The fundamental condition is a disturbance of the respiratory metabolism of the tissues which leads, through processes that are still obscure, to the acapnial state. That this state may properly be defined as acapnia is proved by the fact that, given an adequate oxygen supply and a restoration of the hemoglobin to transport it, no other known procedure brings all the functions of the body back to their normal state so effectively and so rapidly as does inhalation of carbon dioxide.

The critical discovery on which the acapnia theory of shock was based initially is that the amount of carbon dioxide obtainable from a sample of blood by analysis is notably decreased in this condition. There is ample experimental and clinical confirmation for this discovery in the observations of Cannon [22] and others. But the conception of the meaning to be attached to the amount of carbon dioxide in the blood has changed and the terminology has changed with it. Twenty years ago, blood gas analyses were made only in a physiologic laboratory. Now they are commonly relied on clinically. A decreased amount of carbon dioxide in a blood sample is now generally considered to indicate a low "alkali reserve" and a probable state of acidosis. Without entering into the theory, however, it is sufficient to note here that there appears to be a profound distinction between two types of low blood alkali,[11] one of which is acapnia and the other acidosis. The condition of postoperative acapnia differs from the so-called acidosis of nephritis or diabetes in that in acapnia inhalation of carbon dioxide rapidly restores the normal blood alkali.

THE PREVENTION OF POSTOPERATIVE PNEUMONIA

It is now becoming the general practice in surgical clinics to administer an inhalation of carbon dioxide and oxygen at the termination of every general anesthesia. This inhalation was originally introduced [23] as a means of ventilating the anesthetic out of the lungs and abbreviating or eliminating the postoperative period of subnormal breathing, anoxemia and nausea. The procedure is now proving to have a larger value in expanding the lungs and counteracting the development of atelectasis. A single inhalation is not always sufficient. The period within which atelectasis may occur is not limited to the first few hours, or even to the first day or two following operation. The anesthetist therefore should not consider that his service is ended with the return of consciousness. He should observe the patient for several days after a general anesthesia and should administer, as needed, a prophylactic inhalation for the prevention of the development of pulmonary trouble. A simple inhalator,[22] adding carbon dioxide to the inspired air, is all that is needed.

CONCLUSIONS

The causal sequence leading to surgical shock (apart from hemorrhage) and that leading through atelectasis to postoperative pneumonia are closely related. Both originate in acapnia, one through depression of the circulation, the other through depression of respiration.

Acapnia, or deficiency of carbon dioxide in the blood and tissues, is a condition closely related to asphyxia, or deficiency of oxygen in the tissues. Either of these deficiencies disturbs the respiratory processes of the tissues, and each involves a considerable degree of the other. Experimentally, a slight degree of acapnia may be induced by overventilation of the lungs. A more intense form, capable of producing death by failure of respiration, may result from the excessive breathing in the first stage of badly administered anesthesia. But in the most severe form of acapnia leading up to surgical shock, the deficiency of carbon dioxide, or decrease of alkali bicarbonates in the blood, arises from a disturbance of the respiratory metabolism of the tissues analogous to asphyxia. Inhalation of carbon dioxide effects a restoration of the alkali bicarbonates and carbon dioxide content of the blood.

The depression of the circulation after operation and anesthesia (nonhemorrhagic shock) is due to the lowered activity of the respiratory and other nerve centers that influence skeletal muscles. The result is an atonic condition of all the muscles of the body and a decrease of muscular pressure on the tissues which permits the blood to stagnate in the venules and decreases the venous return to the heart. This depression of the normal venopressor mechanism is counteracted by inhalation of carbon dioxide. The consequent increase of muscular tonus augments the venous return and restores the volume of the circulation.

After every major surgical operation there is not only a decrease in the volume of air breathed but also a prolonged loss of tonus and relaxation in the thoracic muscles and the diaphragm. The vital capacity of the thorax is thus greatly decreased; the lungs are correspondingly deflated, and occlusion of pulmonary airways readily develops. The air in the occluded lobules, lobe or lung is then absorbed, and atelectasis is produced. If pathogenic organisms are present they find in the unaerated, undrained area conditions which favor their growth, and pneumonia may result.

Inhalation of carbon dioxide by counteracting acapnia and inducing deeper breathing inflates the lungs and prevents the development of atelectasis. It is thus a specific preventive of the postoperative pulmonary complications that lead to pneumonia.

4 Hillhouse Avenue.

22. Cannon, W. B.: Acidosis in Cases of Shock, Hemorrhage and Gas Infections, J. A. M. A. **70**: 531 (Feb. 23) 1918.
23. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxide After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920; Administration of Carbon Dioxide After Anesthesia and Operation, ibid. **76**: 672 (March 5) 1921; Acapnia Theory, ibid. **77**: 424 (Aug. 6) 1921. White, J. C.: Deetherization by Means of Carbon Dioxid Inhalations, Arch. Surg. **7**: 347 (Sept.) 1923.

Transitory Glycosuria.—The diabetes mellitus of acromegaly, moreover, proves to be notably resistant to treatment by insulin, and it has been repeatedly shown that posterior lobe extract (pituitrin) will diminish or wholly counteract the blood-sugar-reducing effect of this product. Since it is well known that posterior lobe extract produces, at least in animals, a transitory hyperglycemia and glycosuria, it is a natural assumption that in acromegaly the neural portion of the gland is activated, possibly in connection with the known tendency of these cases to have a high basal metabolic rate. What is more, the occasional spontaneous recovery from the diabetes mellitus of acromegaly with the continued progress of the underlying disease may point toward the gradual elimination of posterior lobe activity by pressure destruction from the enlarging tumor; and the occasional disappearance of an existent glycosuria after radical extirpation of a chromophilic adenoma suggests the possible resumption of activity in a previously compressed lobe. With all this, and much of it is purely speculative, there is no gainsaying that the relation of the region in question to sugar diabetes is less evident than to that of water diabetes and to fat metabolism.—Cushing, Harvey: Lister Memorial Lecture, *Lancet*, July 26, 1930.

CONTROL OF BARBITAL ANESTHESIA AND POISONING BY DIURESIS

PRELIMINARY REPORT *

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Since the introduction of barbital (veronal) in 1903 by Fischer and von Mering,[1] the drug has found wide clinical application; but it is not without danger, as evidenced by the numerous reports of acute barbital poisoning ensuing from its use.

Fischer and von Mering [2] showed definitely that the drug is slowly (60 per cent in five days) excreted, unchanged in the urine. Other authors, notably Fischer and Hoppe,[3] von Molle,[4] Authenrieth,[5] Bachem,[6] Halberkann and Reiche,[7] Marc Reinert,[8] and Gower and Tatum,[9] have confirmed this observation.

In 1922, Parsons and Tatum [10] suggested the use of barbital as an anesthetic in laboratory experiments on the lower animals, particularly the dog. We have used the drug many times on the dog and find that after moderate doses the recovery time is very long; i. e., from thirty to forty hours after a dose of 225 mg. per kilogram intravenously.

Two years ago while using barbitalized dogs in some work on hyperglycemia, we were struck by the apparent rapid recovery of these animals as compared with others not receiving large quantities of dextrose solution. This led to the use of diuretic measures in one clinical case [11] of attempted suicide with barbital, and to the experimental work about to be reported.

PROCEDURE

Six moderate sized dogs were used. All injections were made intravenously and the interval between experiments on any individual dog varied from ten to twenty-four days. The recovery time was taken from the time of anesthesia till the time the animal was able to stand.

A typical experiment consisted of a control experiment in which the recovery time was determined following the intravenous injection of 225 mg. of soluble barbital per kilogram. After an interval of from ten to twenty-four days the same dose of soluble barbital was given to the same dog and this was followed in one or two hours by 1 liter of 10 per cent dextrose solution given intravenously and the recovery time was noted. After another interval of from ten to twenty-four days a second control experiment similar to the first was performed in which soluble barbital was given without a subsequent intravenous injection of dextrose.

RESULTS

The results of the animal experiments are recorded in the table. It is noted that, in those dogs receiving 1 liter of 10 per cent dextrose solution following the barbital injection, the recovery time was reduced, in most dogs, to less than one half. The average recovery time of ten trials on dogs receiving barbital alone was from thirty-six to thirty-nine hours, while the average recovery time of nine trials on dogs receiving similar doses of barbital followed by 1 liter of 10 per cent dextrose solution was from fourteen to eighteen hours.

COMMENT

In a recent article Gower and Tatum [9] suggested that, on the basis of the excretion of barbital in the urine, the most rational means of treatment of acute barbital poisoning is to maintain optimum renal function. We feel that our experimental work supplies proof for the usefulness of this method of treatment in cases of poisoning with barbital and other barbituric acid compounds.

This method of hastening the recovery time of barbital anesthesia may also be of value in laboratory experiments in which the long recovery time has precluded this type of anesthetic.

Summary of Results *

Dog No.	Dog Weight, Kg.	Date	Soluble Barbital Mg. per Kg.	Soluble Barbital Total, Gm.	10% Dextrose, Liters	Recovery in Hours
1	8.6	2/26/30	225	1.93	2	14–18
		3/ 4/30	225	1.93	0	36–40
2	11.8	3/ 6/30	225	2.7	1	14–18
		3/12/30	225	2.7	0	18–20
		4/ 1/30	225	2.7	1	12–16
3	10.0	3/ 7/30	225	2.25	1	14–18
		3/21/30	225	2.25	0	38–42
		4/17/30	225	2.25	1	22–26
		5/ 1/30	225	2.25	0	48–52
4	10.0	3/ 7/30	225	2.25	1	14–18
		3/21/30	220	2.25	0	38–42
		4/17/30	225	2.25	1	12–16
		5/ 1/30	225	2.25	0	42–46
5	8.2	4/ 4/30	225	1.85	0	36–40
		4/17/30	225	1.85	1	14–17
		5/ 1/30	225	1.85	0	18–22
6	14.1	4/ 4/30	225	3.2	0	38–96
		4/17/30	225	3.2	1	12–16
		5/ 1/30	225	3.2	0	46–70

* All injections were made intravenously. The last figure of the recovery time represents the time at which the animal was able to stand.

SUMMARY AND CONCLUSION

By animal experiments and by trial on one clinical case of acute barbital poisoning, we are of the opinion that the recovery time from barbital, used as an anesthetic or with suicidal intentions, is markedly shortened, and may be a life-saving measure in acute barbital poisoning. We also feel that this method is useful in laboratory experiments in which barbital would otherwise be precluded by the long recovery period.

* From the Physiological Laboratories of the University of Chicago.

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9. Gower, W. E., and Tatum, A. L.: J. Pharmacol. & Exper. Therap. **37**: 481 (Dec.) 1929.
10. Tatum, A. L., and Parsons, Eloise: Barbital as an Anesthetic for Dogs, J. Lab. & Clin. Med. **8**: 64 (Oct.) 1922.
11. Mrs. R., aged 20, admitted to St. Lukes Hospital as a patient of Dr. Elliott at 1 a. m., March 3, 1929, in a semistuporous condition with a history of having taken 60 grains (4 Gm.) of barbital three or four hours previous to admission. She was given 1,500 cc. of 5 per cent dextrose solution intravenously. This promoted marked diuresis; in six hours she passed 1,100 cc. of urine. By 6 a. m., five hours after admission, she could easily be roused and by noon she showed very few symptoms from the drug.

PSITTACOSIS

REPORT OF A CASE *

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Within the period of a year approximately 500 cases of psittacosis have been recorded.[1] The clinical picture of the disease has been recognized for at least fifty years,[2] and many of the recent cases have been carefully described. Furthermore, the literature has been excellently reviewed by a number of workers.[3] The reasons for reporting the present case are the facts that (1) daily blood counts were made by means of the supravital method of staining; (2) the changes in the lungs were followed by daily roentgen examinations; (3) electrocardiographic studies were made, and (4) a positive laboratory diagnosis was obtained through the use of white mice.

Work on psittacosis was begun in our laboratory February 26, and has continued for four months. A large number of parrots, mice, guinea-pigs, rabbits and monkeys have been inoculated with the virus, and the course of the infection in these animals has been under investigation. All of this work—even the housing of the infected animals—has been conducted in the center of a large research institution. In fact, our laboratory is the most centrally located one in the institute, as it is near the business manager's offices, the library, the dining rooms, the central medium room and the girls' rest rooms. In spite of the infectious nature of psittacosis, we have been able to prevent the occurrence of any cases among the workers and employees. Regardless of the care taken to prevent a spread of the infection, however, one of the physicians (G. P. B.) who came in very close contact with the animals and infectious materials contracted psittacosis five weeks after the inception of our studies. The mode and time of infection are not known.

REPORT OF CASE

History.—G. P. B., aged 31, gave a family history and past history that are unimportant. The onset of the present illness was acute, beginning about 5:30 p. m., March 31, with headache, backache and general muscular pains. The symptoms increased during the evening. Sleep was broken by a slight chill at 5 a. m., April 1. The headache was general at first but soon became basilar, and severe pains radiated down the spine to the lumbar region. Photophobia, burning behind the eyeballs, anorexia and nausea appeared, April 1. In spite of feeling very sick, the patient said nothing of his condition and worked until 4 p. m., when he had two shaking chills, after which his temperature rose to 102 F. At this time he reported his condition and was admitted to the hospital. On admission his temperature was 101.2 F., pulse 90, respiration 22, white blood cells 13,200. Physical examination revealed nothing more than suffusion of the eyeballs, injection of the mucous membranes of the throat, and a heavily coated tongue.

Course in the Hospital.—The temperature, pulse and respirations are shown in the accompanying chart. The temperature was taken by mouth.

April 2, the patient had a restless night because of the headache and backache, which were not relieved by the administration of ordinary analgesics and morphine. The eyes were still red, the throat was injected and the tongue was white. An examination of the chest and the abdomen was negative. A roentgenogram of the chest, however, revealed a small shadow on the left side just below the level of the base of the heart (fig. 1 *A*).

April 3, the headache and backache were still pronounced; the tongue was coated and the breath foul. The lungs showed diminution of tactile fremitus and breath sounds on the left side laterally and posteriorly. A roentgenogram revealed a definite shadow on the left side involving the middle and lower third of the lung. The shadow was not dense but was more marked and extensive than that of April 2. The abdomen was tender and distended.

April 4, on percussion there was dulness in the left axilla and over the lower posterior part of chest. Over these areas, diminution of tactile fremitus and breath sounds was found. The character of the breath sounds was not altered, but posteriorly showers of fine râles were heard on deep breathing.

April 5, the headache was less severe. Distention of the abdomen was still marked. There was no pain in the lungs, but the patient had a slight, unproductive cough. Respirations were not rapid. Tactile fremitus was almost absent over the left side of the chest anteriorly. Beneath the angle of the left scapula there was an area the size of one's hand over which dulness was marked, and distant tubular breathing accompanied by fine râles was heard. Tactile fremitus and voice sounds, however, were not increased. The roentgenogram showed the shadow on the lung denser and more extensive than on the day before (fig. 1 *B*).

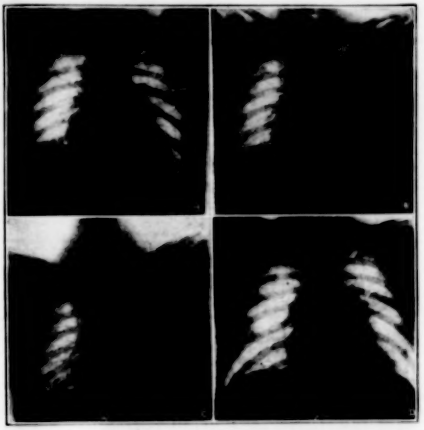

Fig. 1.—*A*, small shadow at left hilus near base of heart; *B*, extensive involvement of left lung; *C*, beginning clearing of lung, from periphery inward toward hilus; *D*, resolution has been extremely rapid; note only the residual hilar shadow.

April 7, headache was still present, and the tongue was white. There was no stomatitis. The slight, unproductive cough persisted. There was no change in the signs in the lungs. The abdomen was still distended and tender, and the liver somewhat enlarged and tender. The spleen was not palpable.

April 8, one mass of grayish yellow tenacious sputum was brought up. No change in the condition of the lungs was noted.

April 10, a drenching sweat occurred during the night, as it had for the past three nights. The patient raised one mass of yellow, blood-tinged tenacious sputum. The signs in the chest were less marked. A roentgenogram showed the shadow on the lung to be clearing (fig. 1 *C*).

April 12, the general condition of the patient was improved, but abdominal distention was still annoying. On examination, the signs in the lungs were found to be disappearing rapidly.

* From the Hospital of the Rockefeller Institute for Medical Research.

1. Roubakine, A.: Monthly Epidemiological Report of League of Nations **9**: 141, 1930.
2. Ritter, J.: Deutsches Arch. f. klin. Med. **23**: 53, 1880.
3. Roubakine (footnote 1). Hutchison, Robert; Rowlands, R. A., and Simpson, S. L.: Brit. M. J. **1**: 633 (April 5) 1930.

A roentgenogram showed a shadow similar to that seen on April 2. This shadow persisted for several weeks and then gradually disappeared (fig. 1 *D*).

Convalescence.—April 15, the temperature for the first time did not go above normal. Convalescence was very slow. A marked wasting of the muscles, particularly those of the legs, induced an abnormal gait that endured for nearly a month.

Laboratory Observations.—Roentgenographic Examinations: Dr. Ross Golden of the Presbyterian Hospital, who kindly examined the roentgenograms of the lungs, reported that the films showed an interesting development and regression of a pneumonic process about the left hilus. The development was steady from April 2 until April 5. The film on April 6 showed an apparent diminution in the shadow. This might have been due in part to the fact that this film was somewhat denser than that taken on the previous day, as there was no evidence of diminution in the shadow on the 7th. The film taken on the 10th, however, showed a striking regression of the pneumonic process. This regression continued until April 25, when the last film was taken. At this time, there remained only an enlarged hilus shadow with infiltration around some of the bronchi radiating out to the left lateral chest wall. These films do not present the picture of an ordinary bronchopneumonia, which is more likely to be located along the descending bronchi or toward the apex. It is the picture usually encountered in influenzal pneumonia. There was a hazy indefinite shadow through which could be seen the somewhat exaggerated lung markings. The process obviously developed from the hilus outward and regressed from the periphery inward. Dr. Golden stated that if these films had been presented to him without a history, he would have interpreted them as a bronchopneumonia of the influenzal type. He did not know of any reason, however, why such a process should not be encountered also in psittacosis.

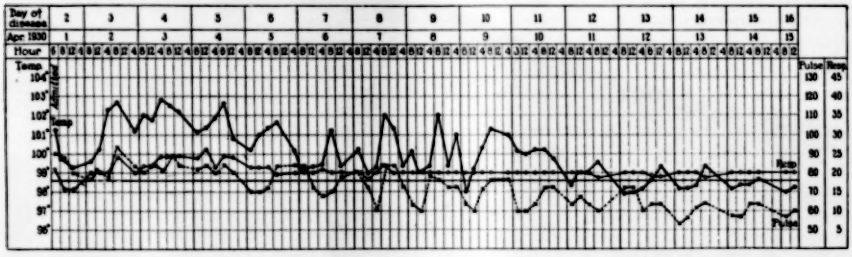

Fig. 2.—Temperature, pulse and respiration in a case of psittacosis. The disproportion between the pulse and the temperature is obvious. In spite of the involvement of the lungs, the respirations were slow.

Blood: Blood counts were made throughout the course of the illness and for more than two weeks during convalescence. Differential counts were made on preparations supravitally stained with neutral red and janus green according to the method of Sabin.[4] The results are summarized in the accompanying table. The first count, made twenty-four hours after the onset of the illness, showed a moderate leukocytosis. Following this, the cells decreased in number and by the end of the first week had reached their lowest level (6,000). On the ninth day of the disease the count rose sharply and thereafter maintained a level of about 8,000 to 9,000. The polymorphonuclear neutrophils showed a striking "shift to the left," i. e., a number of young forms, beginning on the fourth day of the disease. The maximum change was reached on the ninth day, when the absolute number of polymorphonuclear cells was at its lowest level. At this time there were 31 per cent of band forms and 1 per cent of myelocytes. Eosinophils were entirely absent during the first few days of the illness, as is the case in many acute infections. Lymphocytes remained low throughout. On the fourth day they constituted only 5 per cent of a total count of 9,000. The number of these cells rose sharply for the first time two days after the temperature became normal. Such a moderate lymphocytosis, coincident with recovery, has been noted in other acute infections. The monocytes showed nothing of great importance. The supravital technic, which makes it possible to identify these cells with certainty, accounts for the high numbers of monocytes that were constantly present. It may be noted that at no time were the monocytes "stimulated" or changed in appearance, as is the case in tuberculosis. Toward the end of the febrile period, however, a slight monocytosis occurred. The blood picture showed only changes that one might expect in a number of acute infectious diseases that tend to produce a mild leukopenia.

Urine: A moderate amount of albumin was present in the urine at the height of the illness. There was distinctly more than one might expect from fever alone. In other respects the urine showed nothing of importance.

Blood Pressure: The lowest level was reached, April 13, when it was 98 systolic and 68 diastolic. By April 22 it had returned to 118 systolic and 68 diastolic.

Electrocardiograms: During the course of the disease, electrocardiographic examinations were made, but in spite of the relatively slow pulse nothing particularly abnormal was noted.

Blood Culture: Blood drawn April 2 was tested for its sterility in flasks of meat infusion broth and also by the plate method. All of the preparations remained sterile for ten days.

Stool Culture: A culture was made on Endo's medium from a stool passed on April 10. No non-lactose fermenting bacilli were found.

RESULTS OF ANIMAL INOCULATIONS

Five cubic centimeters of blood, drawn April 2, was injected intramuscularly into an Amazon parrot. Blood was also placed in the bird's drinking water and on its food. The parrot remained well and when reinoculated with psittacosis virus six weeks later was found to be susceptible.

Blood drawn April 2 was injected in 0.5 cc. amounts intraperitoneally in each of four mice. They remained well for six weeks, after which time they were discarded.

Nasal washings were collected from the patient, April 2. A portion of this material was dropped into the nose and mouth of an Amazon parrot. The remainder, 10 cc., of the washings was placed in the bird's drinking water. The parrot was not sick at any time, and six weeks later on reinoculation with psittacosis virus was found to be susceptible.

April 10, the patient raised a mass of yellow blood-tinged tenacious sputum. This was washed several times in sterile Locke's solution and then emulsified in Locke's solution. A culture was made on blood agar of a drop of the emulsion, and the predominating organism was found to be *Streptococcus viridans*. One cubic centimeter of the sputum emulsion was injected intraperitoneally in each of five mice. One of the mice died during the second night following the inoculation. Passage from this animal was not attempted, as postmortem changes were marked. Another mouse died fifteen days after inoculation, and from the liver and spleen of this animal an emulsion was made which was injected (0.5 cc.) intraperi-

4. Sabin, F. R.: Bull. Johns Hopkins Hosp. **34**: 277 (Sept.) 1923.

tonically in each of four mice. These animals became sick and died within seven days. By means of liver and spleen emulsions from sick or dead mice the virus has now been carried through nine passages. It regularly kills mice within from four to seven days. Furthermore, an Amazon parrot inoculated intramuscularly with an emulsion of liver and spleen from one of these mice developed a typical attack of psittacosis. Cultures of the livers and spleens have revealed no ordinary anaerobic or aerobic bacteria. Moreover, in smears made from the liver and spleen are found the very minute bodies described by Levinthal,[5] Lillie[6] and Coles.[7] Sections of the liver show fatty degeneration and areas of focal necrosis. The picture of the disease caused by this strain of the virus is identical with that produced by two other strains of psittacosis virus being investigated in the laboratory.

Summary of Blood Counts

Date	Total White Blood Cells	Polymorphonuclear Neutrophils: Absolute No.	Polymorphonuclear Neutrophils: Total per Cent	Polymorphonuclear Neutrophils: Per Cent Band Forms	Eosinophils: Absolute No.	Eosinophils: Per Cent	Basophils: Absolute No.	Basophils: Per Cent	Lymphocytes: Absolute No.	Lymphocytes: Per Cent Small	Lymphocytes: Per Cent Large	Monocytes: Absolute No.	Monocytes: Per Cent
4/ 1:30	13,200	10,296	78	5	....	..	132	1	1,320	8	2	1,452	11
4/ 2:30	7,400	5,476	74	4	....	..	74	1	1,332	16	2	518	7
4/ 3:30	9,000	8,190	91	11	....	..	....	..	450	3	2	900	10
4/ 4:30	10,100	8,383	83	24	....	..	....	..	808	6	2	909	9
4/ 5:30	7,400	5,032	68	27	74	1	....	..	1,702	18	5	592	8
4/ 6:30	7,700	4,697	61	16*	385	5	77	1	1,386	14	4	1,078	14
4/ 7:30	7,200	4,824	67	20	72	1	....	..	1,679	21	2	936	13
4/ 8:30	6,000	4,380	73	31†	60	1	....	..	960	14	2	540	9
4/ 9:30	11,600	9,280	80	10	348	3	116	1	580	4	1	1,276	11
4/10:30	9,700	6,084	72	12	388	4	97	1	679	6	1	1,552	16
4/11:30	10,000	6,469	65	14‡	300	3	....	..	1,648	12	4	1,731	17
4/12:30	9,700	6,790	70	4	679	7	97	1	1,552	11	5	582	6
4/14:30	9,100	6,370	70	..	182	2	91	1	1,274	11	3	1,183	13
4/15:30	9,900	7,722	78	..	99	1	....	..	1,386	8	6	693	7
4/16:30	9,200	5,704	62	..	....	..	....	..	3,441	37	..	805	9
4/17:30	10,200	6,834	61	3	102	1	102	1	2,550	18	7	612	6
4/18:30	8,000	5,520	69	2	320	4	....	..	1,240	12	4	880	11
4/19:30	9,400	6,956	74	..	188	2	94	1	1,504	13	3	658	7
4/21:30	10,200	6,834	67	1	204	2	102	1	2,142	16	5	918	9
4/22:30	7,900‡	4,740	60	2	79	1	79	1	2,291	15	14	553	7
4/23:30	10,600‡	6,800	68	..	600	6	....	..	2,000	20	..	400	4
4/24:30	9,400	No differential on this date											
4/25:30	9,200	5,952	64	..	460	5	....	..	1,291	14	3	1,502	14
4/26:30	8,100	4,698	58	..	486	6	....	..	2,025	24	1	891	11
4/28:30	9,000	5,400	60	..	270	3	270	3	2,340	23	3	720	8
4/29:30	8,400	5,796	69	..‡	420	5	168	2	1,176	10	4	756	9
4/30:30	9,700	6,014	62	..	582	6	....	..	2,037	20	1	1,067	11
5/ 1:30	9,200	4,508	49	1*	644	7	92	1	2,668	28	1	1,196	13
5/ 2:30	7,400	3,478	47	..‡	370	5	74	1	2,368	32	..	1,036	14

* Plus 1 per cent metamyelocytes.
† Plus 1 per cent C myelocytes.
‡ Plus 2 per cent degenerating cells.

COMMENT

The picture presented by this case of psittacosis was typical. The onset of the illness and the general appearance of the patient reminded one of a mild attack of yellow fever in which jaundice and bleeding are absent.[8] (Some have likened it to typhoid.) Nevertheless, the important observation on physical examination is a consolidation of the lungs.

The chief symptoms were severe and persistent headache, backache, and abdominal discomfort caused by distention. The tongue was covered by a peculiar heavy white coat that endured for more than two weeks. From the chart it is obvious that there was a disproportion between the pulse and the temperature. The most striking feature of the disease was the fact that, in spite of the marked involvement of the left lung, no symptoms referable to the chest occurred. There was no increase in rate of respiration, no pain on breathing, very little cough, and no expectoration except on two occasions.

5. Levinthal, W.: Klin. Wchnschr. **9**: 654, 1930.
6. Lillie, R. D.: Pub. Health Rep. **45**: 773 (April 11) 1930.
7. Coles, A. C.: Lancet **1**: 1011 (May 10) 1930.
8. We have recently cared for three patients with yellow fever and have been struck by the similarity between the two diseases.

Bedson and his co-workers,[9] by means of injections of patients' blood into love birds, have been able to demonstrate the presence of psittacosis virus. The injection of 5 cc. of blood from our patient into a susceptible parrot, however, yielded a negative result. Of course, this does not cast doubt on Bedson's results.

Krumwiede and his co-workers[10] have shown that mice are susceptible to the virus of psittacosis. For the first time, however, we have been able to demonstrate that these animals can be used for the diagnosis of the disease in human beings. This was accomplished by injecting washed sputum into their peritoneal cavities. Naturally, the presence of virulent pneumococci and hemolytic streptococci will interfere with this method. In case these organisms are present, the sputum should be emulsified and passed through a Berkefeld V filter before being used.

The results of our work in connection with the case reported at this time serve to emphasize the fact that the etiologic agent of psittacosis is neither Nocard's bacillus nor any other ordinary bacterium. Moreover, it appears that the white mouse may serve as a suitable animal for diagnostic purposes. Thus, in many instances, a laboratory diagnosis that ordinarily would be unfeasible will become possible. Finally, it has been shown that the virus of psittacosis is in the sputum of individuals with involvement of the lungs, and this fact should be borne in mind by those who care for these patients.

Sixty-Sixth Street and York Avenue.

9. Bedson, S. P.; Western, G. T., and Simpson, S. L.: Lancet **1**: 345 (Feb. 15) 1930.
10. Krumwiede, C.; McGrath, M., and Oldenbusch, C.: Science **71**: 262, 1930.

* From the Hospital and Laboratories of The Rockefeller Institute for Medical Research.

1. Rivers, T. M., and Berry, G. P.: Proc. Soc. Exp. Biol. & Med. **27**: 802, 1930.
2. Rivers, T. M.; Benjamin, Bernard; and Berry G. P.: Psittacosis, this issue, p. 577.

PSITTACOSIS

OBSERVATIONS CONCERNING THE EXPERIMENTAL DISEASE IN PARROTS, MICE, RABBITS, GUINEA-PIGS AND MONKEYS *

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In a previous paper [1] the fact that mice, rabbits and guinea-pigs are susceptible to psittacosis was reported. No description, however, of the pathologic changes observed or of the work on immunity was given, nor was any mention made concerning experimental psittacosis in monkeys. Furthermore, the portal of entry and exit of the virus was not discussed. The occurrence of a laboratory infection [2] in one of the workers (G. P. B.) made feasible certain experiments on immunity and also furnished a series of roentgenograms of the lung involvement to be used for comparison with those obtained of the experimental disease in monkeys. Therefore, in view of the general interest in psittacosis, it seems advisable at this time to record briefly the results of some of our work.

NEUTRALIZATION OF PSITTACOSIS VIRUS WITH CONVALESCENT SERUM

Although serum from recovered individuals has been used in the treatment of psittacosis, no one has shown experimentally that such serum has curative or prophy-

lactic properties. In fact, the outcome of one reported experiment [3] was doubtful. The results of our work also indicate that it is not a simple matter to demonstrate neutralizing properties in convalescent serum.

In the first experiments performed to show immune properties in convalescent serum, mice were used. Since the results were irregular, rabbits were chosen for further work. As previously reported,[1] by means of intracerebral inoculations of virus, psittacosis can be transmitted indefinitely from rabbit to rabbit. Only a few of the infected animals die, but all of them have a very high temperature, from 104 to 108.5 F. Therefore, the temperature was chosen as an index of neutralization. Specimens of serum collected from a normal adult and from the patient (G. P. B.) on the second day of the disease were used as controls. Serum taken from the patient thirteen days after his temperature had returned to normal was the test material. Properly graded dilutions of the virus were mixed with equal amounts of the different serums and incubated for five or six hours at 37 C., after which 0.25 cc. of each mixture was injected

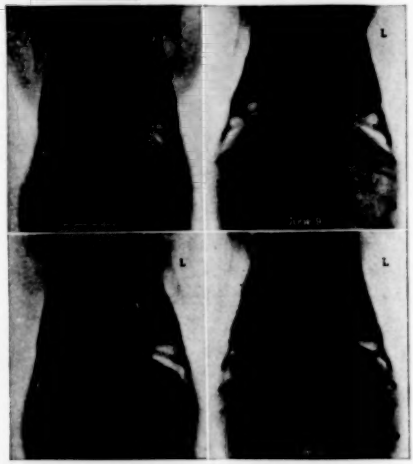

Fig. 1.—Monkey J.: *A*, two days before inoculation; *B*, two days after intratracheal inoculation with psittacosis virus, with initial lesions near the hilus; *C*, four days after inoculation, with lesions more extensive; *D*, six days after inoculation; Involvement of lungs extends to the periphery; heart shadow has definitely increased in size.

intracerebrally into rabbits. Daily observations of the temperatures were made for a week. The normal serum and the serum from the patient early in the disease did not prevent high temperatures (105-107 F.) in the animals, while some of the animals that received a mixture of virus and convalescent serum failed to show a temperature above 104 F.

REINOCULATION EXPERIMENTS

It has been presumed that animals which have recovered from psittacosis are immune to reinfection. Little experimental proof, however, has been adduced to substantiate such a presumption. We have been able to demonstrate that an infection with the virus does lead to immunity in recovered parrots and rabbits.

A number of mice recovered from an infection with psittacosis virus. When they were reinoculated, many of them died. Although they survived longer than did the controls, the results of the experiment were not very striking. Three parrots recovered from an experimental infection. When these animals were reinoculated intranasally with a potent virus that promptly killed the control bird, they showed no evidence of infection. Furthermore, a large number of rabbits intracerebrally inoculated with virus or with normal organ emulsions were allowed to recover. Then, from three to eight weeks after recovery, they were reinoculated with virus. All of the rabbits, with the exception of one, which showed evidences of infection (high fever) after the first inoculation, exhibited none on reinoculation. The animals that received normal organ emulsions as a primary inoculation, however, had high fever when reinoculated later with virus.

PORTAL OF ENTRY AND EXIT OF THE VIRUS

In handling a highly infectious disease, it is desirable to know the portal of entry and exit of the virus in various hosts. Since the parrot and man are the hosts of particular interest, most of the discussion, either directly or indirectly, will be concerning them. Krumwiede [4] and his co-workers performed one experiment in which they were unable to demonstrate psittacosis virus in the fecal droppings of a sick parrot. Armstrong and his collaborators,[3] however, were able to infect birds with filtered fecal material. The results of our own work reveal that the virus is in the feces and also in a mixture of the materials collected from the nose, mouth and procrop of a sick parrot. Furthermore, parrots are readily infected by dropping the virus in the nose. From our work on monkeys, to be described later, one may conclude that the virus enters man by way of the nose or mouth. Moreover, from our experience with a human case of psittacosis,[1] it is obvious that the virus is in the sputum.

From a number of infected parrots we have collected uncontaminated feces. Intranasal instillations of emulsions of this material regularly produced psittacosis in susceptible birds. Infected birds that had been killed with chloroform were suspended by their feet. Frequently a thick starchy material ran from the mouth and nose. Much of this undoubtedly came from the procrop. When this material was instilled into the nose of susceptible birds, psittacosis was induced.

PATHOLOGY OF PSITTACOSIS IN PARROTS, MICE, RABBITS AND GUINEA-PIGS

Since the virus of psittacosis undoubtedly attacks the lungs of man, many workers have devoted most of their attention to changes found in the lungs of experimental hosts. In dealing with parrots, mice, rabbits and guinea-pigs, however, we have been struck by the fact that the lungs in these animals are only rarely involved. In parrots inoculated intramuscularly or intranasally, and in mice infected intraperitoneally, the most constant and characteristic changes are found in the liver and the spleen.

Parrot Liver.—Gross Pathologic Changes: The liver is usually larger than normal with rounded edges, and has a yellowish tint indicating fatty degeneration. Frequently its surface is studded with white dots of varying sizes some of which are surrounded by red areolae. At times large areas of the liver are yellow and are encircled by hemorrhagic zones. Such lesions affect the edges of the organ and suggest infarcts.

Microscopic Changes: The characteristic lesion of psittacosis in parrots consists of multiple, discrete areas of liver cell necrosis, distributed irregularly throughout the lobules but with a tendency to be more numerous near the edge of the organ. The condition appears to have its onset in the death of isolated liver cells or groups of cells; the cytoplasm becomes acidophilic and granular, and shrinks from contact with other cells. The nuclei become hyperchromatic and pyknotic, and eventually

3. Armstrong, Charles; McCoy, G. W., and Branham, S. E.: Pub. Health Rep. 45:725 (April 4) 1930.

4. Krumwiede, Charles: Personal communication to the authors.

disappear completely. At this stage, mononuclear phagocytes and a few polymorphonuclear cells surround and infiltrate the lesion. As the process progresses, the necrotic liver cells disappear, leaving strands of acidophilic, hyaline material which may or may not show collections of leukocytes and depositions of fibrin. Often the areas of necrosis are so large that one is led to question whether they are the result of vascular thromboses. Striking alterations in the vascular channels are not usually seen, but in certain cases fibrin thrombi, involving the portal vessels, are found. In most cases only small vessels are occluded, but occasionally a large branch is involved. The question as to whether the areas of necrosis result from vascular thromboses or whether the thromboses are caused by the necrosis cannot be answered at present. When necrotic areas penetrate to the surface of the liver, accumulations of inflammatory cells are seen under Glisson's capsule and are doubtless the cause of the perihepatitis and peritonitis that are so often encountered.

Fig. 2.—Section through a lobe of a monkey's lungs intratracheally infected with psittacosis virus: The peripheral portion of the lobe in places is still air-containing; the reaction is most intense around the bronchi and blood vessels; eosin and methylene blue; slightly reduced from a photomicrograph with a magnification of 6 diameters.

Throughout the organ there is a proliferation of Kupffer cells and focal accumulations of wandering mononuclear cells of the same general type. Some of these have a highly vacuolated cytoplasm containing masses of fat. Many plasma cells are also present.

The bile ducts show a variable degree of involvement. In cases in which only small lesions are present, no reaction in these structures is observed. In the presence of extensive destruction of the parenchyma, however, there is an extremely active proliferation of the bile ducts.

Parrot Spleen.—Gross Changes: The spleen is always greatly enlarged and very friable.

Microscopic Changes: The normal architecture of the lymphoid follicles is almost completely obliterated, while the reticular and sinus structures are well preserved. The entire organ is densely infiltrated with wandering phagocytic cells which have a vacuolated cytoplasm containing amorphous débris, pigment and globules of fat. The increase in size apparently is due to the content of blood and the enormous number of mononuclear cells.

Mouse Liver.—Gross Changes: The liver is always larger than normal. Fatty degeneration is a prominent feature and at times is so marked that the whole organ becomes chamois colored. In addition to these changes, white or yellow dots often stud the surface. These lesions tend to be more numerous near the edge of the organ and may be surrounded by red areolae.

Microscopic Changes: Pathologic alterations in the livers of mice always occur and are extremely characteristic. A general infiltration with fine globules of fat and a granular degeneration of the liver cells are present. Isolated groups of cells, with no apparent relation to the structural landmarks of the organ, undergo an acidophilic degeneration and eventually disappear, leaving a pink reticulated mass which rapidly becomes infiltrated with mononuclear and polymorphonuclear cells. If the lesion is near the surface, a cellular exudate extends through and over the surface of the capsule. The cause of the necrosis is not known. Although we have not been able as yet to demonstrate any primary involvement of the vascular supply, the possibility that such a phenomenon may account for the picture must be borne in mind. In addition to the necrotic lesions, the sinuses of the liver contain large numbers of mononuclear cells, many of which are apparently derived from Kupffer cells.

PSITTACOSIS IN MONKEYS

Lesions in the lungs of parrots, mice, rabbits and guinea-pigs occurred so rarely that we decided to use monkeys in the hope of obtaining an involvement of this organ similar to that described in man. Young *Macacus rhesus* monkeys were employed. At first, intracerebral inoculations of the virus were made. The animals were susceptible to the virus introduced in this manner but showed no changes in the lungs. Then intratracheal and intranasal inoculations were tried, and typical lung lesions were regularly obtained in this manner.

Intratracheal Inoculations.—A number of monkeys were inoculated intratracheally with from 2 to 4 cc. of liver and spleen emulsions from mice infected with psittacosis. All of the animals had high temperatures and roentgenographic evidences of consolidation of the lungs. Some died, and others were killed at different times following inoculation in order to study the various stages of the pathologic picture. A successful subpassage was obtained in one instance, and mice inoculated with an emulsion from this animal's liver died of psittacosis. The lungs at autopsy in all instances were free from ordinary aerobic and anaerobic bacteria. Furthermore, the presence of psittacosis virus in the lungs was demonstrated by inoculation of emulsions of these organs into mice and

Fig. 3.—Consolidation in a monkey's lungs caused by psittacosis virus: The upper portion of the picture shows a disappearance of air-containing alveoli induced by a thickening of the alveolar walls and by a mononuclear exudate within the alveoli; in the lower portion, the thickened alveolar walls are still definable; eosin and methylene blue; slightly reduced from a photomicrograph with a magnification of 65 diameters.

parrots. Moreover, a monkey inoculated intratracheally with an emulsion of liver and spleen from normal mice developed no fever and no roentgenographic evidence of lung involvement during the period of observation.

Intranasal Inoculation.—Two monkeys were inoculated by intranasal instillation of 1.5 cc. of a liver and spleen emulsion from mice infected with psittacosis. One of the animals developed a high fever two days after inoculation; a roentgenogram revealed marked involvement of the lungs, which was shown at autopsy to be typical of psittacosis.

Roentgen Examinations.—Regardless of whether the virus was administered intratracheally or intranasally, the lesion always began at the hilus and then spread toward the periphery of the lungs. This is excellently demonstrated in the series of roentgenograms of monkey J (fig. 1), which show a striking similarity to those in the preceding paper [2] on psittacosis in the lungs of man.

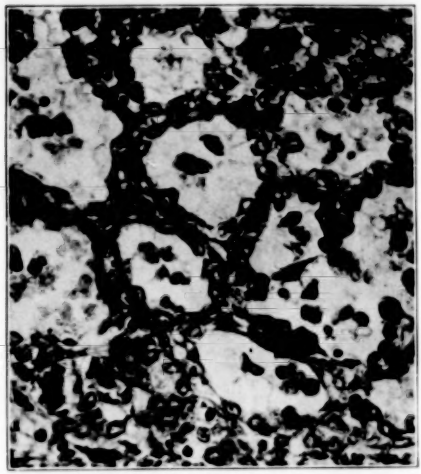

Fig. 4.—A higher magnification of the process shown in figure 3: The alveolar walls are greatly thickened; desquamation of cells into the alveoli is beginning; eosin and methylene blue; slightly reduced from a photomicrograph with a magnification of 450 diameters.

Gross Changes.—Lungs: On opening the thorax, one finds a delicate fibrinous pleurisy over the involved lungs. Areas of consolidation are observed in one or more lobes. Such areas are firm and not very red. On section, their surface is smooth, almost glistening, and mottled with pale zones surrounding the bronchi and blood vessels. No exudate is seen in the bronchi. The consolidation obviously begins at the hilus and spreads toward the periphery of the lung. Hilar lymph nodes are much larger than normal.

Heart: In many of the animals, an increase of pericardial fluid, that may or may not be cloudy, occurs. The heart is usually enlarged, and its muscle is flabby.

Liver: The liver may be enlarged, and at times there is distinct evidence of fatty degeneration. In many of the animals, small areas of necrosis have been observed near the border of the right lobe in the neighborhood of the round ligament.

Spleen: This organ usually appears to be normal.

Microscopic Changes.—Lungs: Examination reveals that the pathologic changes are most intense near the hilus and decrease as the periphery of the organ is approached where some normal alveolar structures may be found (fig. 2). Adjoining the air-containing alveoli is a zone in which the alveolar walls are mildly distended with mononuclear cells and the alveolar cavities contain a moderate number of cells and some precipiated albumin (figs. 3 and 4). In the neighborhood of the hilus, the alveolar walls show a marked cellular infiltration and the alveolar spaces are filled with fibrin and mononuclear cells (figs. 3 and 5). There is congestion of the capillaries, but the cellular infiltration or proliferation in the alveolar walls is the striking feature (fig. 4). At times the interstitial tissue is so distended by cells that the alveoli are partially or completely obliterated (fig. 5). Moreover, there may be an active proliferation of the alveolar epithelium, giving rise to rows of cuboidal cells lining the alveolar spaces. Occasionally, necrosis is observed. When it occurs, the alveolar walls that are in the necrotic areas evidence hyaline changes. The adventitia of the veins is distended with mononuclear cells, (fig. 3) and the picture resembles the "cuffing of blood vessels" in encephalitic brains. Mononuclear cells—clasmatocytes, plasma cells and lymphocytes—constitute most of the infiltrating elements, but polymorphonuclear cells are observed, particularly in the necrotic areas.

Liver: There is a diffuse fatty degeneration of the liver cells. In the liver of one monkey, areas of focal necrosis, similar to those found in the livers of mice, were observed.

Spleen: A definite increase in the number of large mononuclear cells occurs. In some of the malpighian corpuscles, a central necrosis, associated with hyaline changes in the vessels and depositions of fibrin, is observed.

ETIOLOGY

Stained preparations of highly infectious material reveal no ordinary bacteria. Moreover, aerobic and anaerobic cultures of such material have not demonstrated ordinary bacteria. The "minute bodies" described by Levinthal,[5] Lillie [6] and Coles [7] have been found in preparations made from parrots and mice. Such bodies, however, have not been seen in highly infected organs of rabbits and monkeys. Further search for them in these animals should be made. The necessity of this search is emphasized by the fact that infectious organ emulsions from rabbits produced in parrots psittacosis with an abundance of "minute bodies." Furthermore, similar organ emulsions from monkeys, in which these bodies were not seen, induced in

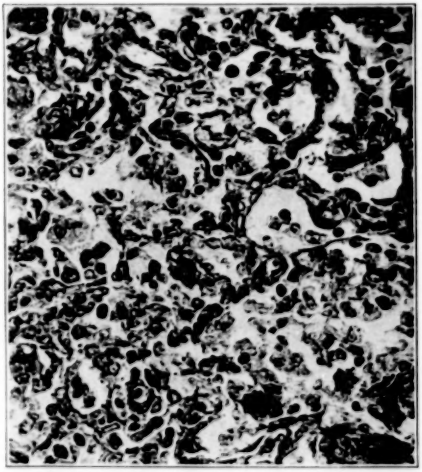

Fig. 5.—An advanced stage of the process shown in figure 4: The alveoli are either filled with mononuclear cells or collapsed by the great thickening of the alveolar walls; eosin and methylene blue; slightly reduced from a photomicrograph with a magnification of 450 diameters.

5. Levinthal, W.: Klin. Wchnschr. **9**: 654, 1930.
6. Lillie, R. D.: Pub. Health Rept. **45**: 773 (April 11) 1930.
7. Coles, A. C.: Lancet **1**: 1011 (May 10) 1930.

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mice psittacosis associated with the presence of the small bacteria-like structures. The nature of these small structures and their relation to psittacosis are not known.

SUMMARY

1. The virus of psittacosis is in the feces and in the material collected from the nose, mouth and procrop of infected parrots.

2. Parrots and monkeys can be infected by intranasal instillations of the virus.

3. Parrots and rabbits that have recovered from a primary infection are refractory to reinfection.

4. It is not a simple matter to demonstrate neutralizing properties in convalescent human serum.

5. In parrots and in mice, the principal lesions occur in the liver and spleen.

6. Young monkeys (*Macacus rhesus*) are susceptible to intracerebral, intratracheal and intranasal inoculations of psittacosis virus. When it is instilled in the nose or injected in the trachea a characteristic pathologic picture occurs in the lungs which is similar to that observed in man.

Sixty-Sixth Street and York Avenue.

ACUTE TUBERCULOUS IRITIS

MICROSCOPIC EXAMINATION OF AN EYE SHOWING THIS CONDITION *

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BOSTON

The condition found in the case here described, although perhaps not uncommon, has apparently not hitherto been recognized. It occurred in a patient who had been blind from retinitis pigmentosa for more than twenty years. In this paper only the changes found in the anterior part of the eye will be described in detail; those found in the fundus had no relation to the tuberculous process and will be dealt with in a separate communication.

REPORT OF CASE

History.—C. F., a man, aged 64, admitted to the Massachusetts Eye and Ear Infirmary, April 1, 1928, stated that about three days previously he had begun to have severe pain in the right eye. He had been blind from retinitis pigmentosa for more than twenty years. His general health had usually been good. At the age of 27 he had had a severe attack of pleurisy and since then a number of minor attacks, one attack eleven years before being rather severe. The pleurisy had always been on the left side. He had no cough at the present time.

The patient's father died of stricture, his mother of tumor. A brother and sister died of tuberculosis. One brother became blind at the age of 17 years. The patient's wife was alive and well. Two daughters and four sons were alive and had good vision. One child died at birth.

General Physical Examination.—The patient was fairly well preserved. No glands were palpable in the neck. Percussion of the chest revealed impaired resonance over the right apex. The breathing sounds were vesicular except in the region of the right apex, where they were bronchial to cavernous with numerous crepitant râles. Marked egophony and pectoriloquy were present. Tactile fremitus was increased. The heart was not enlarged. The second sounds were faint and of fairly good quality. There were no murmurs. The blood pressure was 140 systolic and 80 diastolic. The abdomen was soft, with no tenderness. The knee jerks were normal. There was no edema of the ankles. The urine showed a slight trace of albumin but no sugar. The pulse rate was 81; the temperature, 98.4 F.

Roentgen examination of the lungs by Dr. A. S. MacMillan showed tuberculosis of the right apex, far advanced, with cavity formation; there was a healed area in the left apex, and a ring shadow of the pleura to the left of the middle of the chest (fig. 1).

Examination of Eyes.—There was moderate ciliary congestion of the right eye. The cornea was clear, the aqueous turbid. The pupil was small, irregular and fixed, and filled with fibrin. The iris was discolored; the fundus was not visible. Tension was 26 mm. (Schiötz). Vision was nil. The left eye was free from congestion. The iris was normal. There was a small posterior cortical cataract. The fundus showed the typical picture of retinitis pigmentosa. Tension was 14 mm. (Schiötz). Vision was nil.

The patient insisted on removal of the right eye on account of pain.

April 2, simple enucleation of the right eye was done under local anesthesia.

April 7, the patient was discharged.

Dec. 30, 1929, the general condition of the patient was unchanged. Roentgen examination of the chest showed the identical conditions found on the first examination. The temperature was 98. The Wassermann reaction was negative.

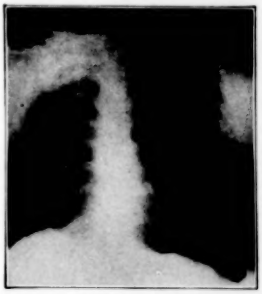

Fig. 1.—Roentgenographic appearance of chest, showing old tuberculous process at right apex, and evidences of old pleurisy on the left side.

Pathologic Examination of the Right Eye.—The eye was fixed in Zenker's fluid twenty-four hours and embedded in celloidin.

The globe, normal in size and shape, opened after the fixation, showed nothing noteworthy macroscopically except pigmentation of the retina as in retinitis pigmentosa.

On microscopic examination the cornea appeared normal. No cell precipitates were present on the back of the cornea. The anterior chamber was filled with precipitated serum. There was no hypopyon. The root of the iris was adherent to the ligamentum pectinatum, but so lightly that in some sections the root had been pulled away in the preparation of the specimens. The iris showed four inflammatory foci, all on the same side of the eye, one at the pupillary margin, one at the root, and two close together at a distance of 1 mm. from the root (figs. 2, 3 and 4). The latter two were easily recognized as tuberculous. The larger appeared as a nodule about 0.65 mm. in size, and consisted of a dense mass of epithelioid cells, arranged perpendicular to the iris, which replaced the anterior boundary layer. It was coated with a thick layer of fibrin which projected into the anterior chamber. It contained a few necrotic nuclei but no recognizable lymphocytes, plasma cells, pus cells, macrophages or giant cells. Some sections showed it connected with a smaller focus situated beneath the dilatator muscle (fig. 3). This smaller focus also consisted chiefly of epithelioid cells and was infiltrated and surrounded with fibrin. Many of the epithelioid cells had undergone necrosis, and within the focus were many macrophages. Macrophages had also collected beneath the pigment epithelium behind the focus. In the vicinity of this focus were a few macrophages of unusually large size, filled with pus cells, and there were also a few discrete pus cells. Farther away, the iris stroma contained a few lymphocytes.

The focus at the root of the iris (fig. 4) was situated just beneath the pigment epithelium and also consisted chiefly of

* From the Massachusetts Eye and Ear Infirmary.
* Read before the Section on Ophthalmology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

epithelioid cells. Behind it the epithelium was lifted up by a collection of macrophages, most of which were loaded with chromatin fragments.

The focus at the pupillary margin was the largest. The iris stroma here showed hemorrhagic extravasations and, chiefly anterior to the sphincter, marked proliferation of epithelioid cells. Giant cells were almost entirely absent—only three were found in all the sections examined. The cells most abundant in the lesion were macrophages. Most of these were distended with chromatin fragments, some to the size of a large giant cell. At the pupillary margin the pigment epithelium

Fig. 2.—Section showing tuberculous foci in iris, the largest at the pupillary margin. The pupil was filled with fibrin.

had been separated into two layers. In some sections the resulting space was filled with a mass of fibrin containing numerous disintegrating pigment cells; in other sections the space was filled with disintegrating macrophages. Masses of such macrophages were also collected between the pigment layer and the lens. From the anterior surface of the iris and the pupillary margin, a large mass of fibrin extended over the lens and filled the pupil (fig. 2).

Away from the foci just described, the iris was congested but was almost free from cellular infiltration. On its anterior surface were numerous mononuclear cells, most of them recognizable as macrophages, many of which showed degenerative changes. These cells often contained pigment granules.

Sections stained in carbolfuchsin for tubercle bacilli failed to show any organisms in the lesions. Sections stained in thionin and by the gram method also failed to show any organisms.

The ciliary body was congested and somewhat edematous but showed only an insignificant infiltration with cells, chiefly lymphocytes. The ciliary processes showed marked senile hyaline change with obliteration of many of the vessels. The pars ciliaris retinae showed senile hyperplasia, and one ciliary process contained a so-called adenoma 0.7 mm. in diameter. There was no exudation of cells from the ciliary body.

The vitreous was free from cellular infiltration and showed slight if any increase in its stellate cells.

The lens showed a slight posterior cortical cataract—a cleft 0.1 mm. anterior to the posterior capsule and 0.2 mm. by 0.03 mm. in size, in which the lens fibers were breaking up into granules and undergoing solution.

The posterior part of the eye was entirely free from inflammatory reaction. The fundus showed changes typical of retinitis pigmentosa.

COMMENT

In spite of the failure to find tubercle bacilli in the lesions in the iris in this case, no doubt of their tuberculous nature remains in view of the character of the lesions, the clinical and roentgen evidences of old pulmonary tuberculosis, and the history of repeated attacks of pleurisy. The acute fibrinous reaction associated with the lesions is difficult to explain. Possibly it was due to a marked allergy to tuberculous toxins, but the almost complete absence of pus cells about the lesions is against this hypothesis. The significance of the abundance of macrophages behind the lesions is also not clear.

Three types of tuberculosis of the iris are generally recognized; namely, the miliary, the chronic and the conglomerate. The miliary type I have never knowingly observed, either clinically or microscopically, and I am therefore not in a position to discuss it. It seems to me obvious, however, that it can be of no greater clinical importance than miliary tuberculosis of the choroid. Chronic tuberculosis of the iris is coming to be recognized as a common condition. Small tubercles, often visible on clinical examination, occur in the iris and can sometimes be found microscopically in a piece of iris removed by iridectomy for secondary glaucoma. The tubercles are composed of epithelioid and giant cells. The onset of the iritis is insidious and painless. Conglomerate tuberculosis of the iris is extremely rare. Few ophthalmologists ever see it and, when they do, they almost always fail to recognize it. I have seen it in only two cases clinically but have had five eyes with the condition submitted to me for microscopic examination. A characteristic feature is that the mass in the iris perforates the globe at the corneal limbus before greatly involving the posterior part of the eye. There is marked caseation, and tubercle bacilli can generally be found in the lesion if carefully searched for. The condition occurs almost exclusively in young persons; usually, if not always, it is associated with active tuberculosis elsewhere in the body, and its onset is slow and painless: weeks or months may elapse before the patient seeks medical attention.

The type of tuberculous iritis in the present case did not conform to any of these types. In an experience of more than thirty years I have examined microscopically a considerable number of eyes showing tuberculosis of the iris, but I have never hitherto observed microscopically the type of iritis found in this case. The features of the case especially noteworthy were the

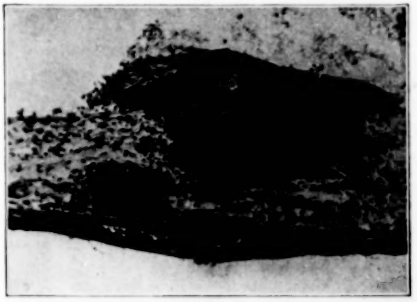

Fig. 3.—Smaller tubercle shown in figure 2, under higher magnification. The nodule is composed chiefly of epithelioid cells and is coated with fibrin. Connected with it may be seen a still smaller nodule which involves the posterior surface of the iris.

rapid onset with pain and congestion, the fibrinous exudate in the pupil, and the active exudation of macrophages from the posterior surface of the iris in the vicinity of the lesions. The clinical picture was that of an acute "rheumatic" iritis. Whether or not the tuberculous process would later have taken on the characteristics of the chronic or conglomerate type it is, of course, impossible to say with absolute certainty; but the facts that both of the latter types begin

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insidiously and that the conglomerate type occurs almost exclusively in young individuals with active systemic tuberculosis make it almost certain that the iritis in this case would have subsided as in an ordinary case of acute iritis. This case, therefore, strongly suggests that some, possibly many, cases of acute iritis supposed to be due to dental infections and the like are really tuberculous in origin. Certainly, in any case of acute iritis in which there is recognizable pulmonary tuberculosis, the iritis should now be suspected to be tuberculous. The slit lamp probably will not greatly assist in the diagnosis, owing to the lesions being obscured by fibrin. It is not likely that further microscopic evidence will soon be forthcoming, since such an opportunity as was furnished by the present case will seldom occur. A study of the skin reactions to tuberculin in a series of cases of acute iritis might throw additional light on the question.

Fig. 4.—Tuberculous focus at root of iris. The pigment epithelium over it is lifted up by an exudate of macrophages.

SUMMARY AND CONCLUSIONS

A man, aged 64, with retinitis pigmentosa, blind for more than twenty years, developed in one eye acute fibrinous iritis clinically similar to acute "rheumatic" iritis. Roentgen examination of the chest showed marked evidences of old pulmonary tuberculosis. There was no cough or elevation of temperature. On account of pain the eye was removed about five days after the onset of the subjective symptoms. Microscopic examination showed small recent tuberculous foci in the iris which had given rise to a fibrinous exudate in the pupil. The acute reaction may have been due to an allergic condition of the patient toward tuberculous toxins. Since the case does not conform to any type of tuberculous iritis hitherto recognized, it suggests that some, possibly many, cases of supposed "rheumatic" iritis are due to tuberculosis.

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ABSTRACT OF DISCUSSION

DR. ALAN C. WOODS, Baltimore: The situation is chiefly this: An individual with known active tuberculosis develops an acute eye lesion which warrants enucleation of the eye. Histologic examination of this eye reveals a picture that is almost certainly tuberculous yet differs from the picture of ocular tuberculosis usually encountered. Dr. Verhoeff offers the suggestion that this may be an allergic tuberculous reaction in the eye. The great importance of allergy in tuberculosis is well recognized, yet so far as I know this is the first instance wherein an ophthalmologist has pointed to a specific tuberculous lesion and suggested that allergy may play a part in its production.

What is the probable situation in this case reported by Dr. Verhoeff? There is active tuberculosis of long standing, and the patient is still in relatively good condition. One is justified in assuming a high degree of allergy, of tuberculin hypersensitivity, and also of acquired resistance. The mode of ocular infection is undoubtedly from the blood stream—a bacillemia caused by a caseous mass eroding into a large vessel, or to bacilli entering microscopic blood vessels from small lesions. While no direct evidence is presented in favor of either view, the general picture described favors the latter premise.

I cannot agree with Dr. Verhoeff that the almost complete absence of pus cells argues against the hypothesis that these lesions may be allergic.

The eye was enucleated, apparently about the fifth day after the onset of the acute symptoms. In describing the histologic picture, Dr. Verhoeff says: "In the vicinity of this focus were a few macrophages of unusually large size, filled with pus cells, and there were also a few discrete pus cells." If conclusions can be drawn from the study of experimental allergic skin reactions produced by tuberculoprotein, this leukocyte picture is exactly what would be expected on the fifth day of the lesion. I agree with Dr. Verhoeff in his statement that the clinical diagnosis of tuberculosis might well be missed in such a patient as this and the process have subsided without its actual nature being suspected. The pathologic picture in this eye appears to be the early stage in the formation of the so-called hard tubercle, with dense masses of epithelial cells, the typical lesion which follows infection with a few bacilli in a patient with high resistance and allergy.

Dr. Verhoeff's suggestion that this is an allergic tuberculous lesion is well founded. The entire clinical picture supports such an hypothesis.

SOME NEWER REMEDIES IN THE TREATMENT OF PERNICIOUS ANEMIA

DESICCATED STOMACH *

RAPHAEL ISAACS, M.D.
AND
CYRUS C. STURGIS, M.D.
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The subject of specific organotherapy in the treatment of blood diseases was reopened by two observations in the treatment of anemia. The first was that of Whipple, Hooper and Robscheit,[1] who noted that liver and kidneys were more effective than other organs in the dietary treatment of the anemia of hemorrhage in dogs. Later, Minot and Murphy[2] found that these organs were even more specific in treating the totally different type of anemia in man, pernicious anemia. Unlike diseases of the thyroid, pituitary, suprarenal and pancreas, the feeding of the specific organ or its extracts (bone marrow, spleen) did not prove as effective in relieving anemias or blood dyscrasias as had at first been hoped. Leake[3] reported good results with feeding freshly prepared spleen and bone marrow, but the results in pernicious anemia were not as striking as those following liver therapy. The successful use of totally different organs, as liver and kidney, suggested a different type of replacement therapy than is the case

* From the Thomas Henry Simpson Memorial Institute for Medical Research of the University of Michigan.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Whipple, G. H.; Hooper, C. W., and Robscheit, F. S.: Blood Regeneration Following Simple Anemia: IV. Influence of Meat, Liver and Various Extractives Alone or Combined with Standard Diets, Am. J. Physiol. **53**: 236 (Sept.) 1920.

2. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470 (Aug.) 1926.

3. Leake, C. D.: Erythropoietic Action of Red Bone Marrow and Splenic Extracts, J. Pharmacol. & Exper. Therap. **22**: 75, 401, 1923.

in thyroid or insulin treatment of the deficiencies in the secretions of these organs. Some light was thrown on the problem by the fundamental contribution of Castle [4] in his demonstration that something was secreted by the healthy stomach that had the power of digesting meat in such a way as to produce a specific, blood maturing substance. The liver and kidney, and to some extent other organs, probably acted as a storage place for the elaborated material. This substance was not secreted by patients with pernicious anemia, and the inference followed that with the failure of the red bone marrow cells to mature in this disease was associated the inability of the patient to develop the blood maturing substance.

We,[5] as did Sharp,[6] found that stomach chopped, dried and defatted contained a considerable amount of the active material. This was soon confirmed by Conner [7] and Wilkinson [8] and others,[9] as these authors had been working independently on the same problem at the same time. In anemia of hemorrhage in dogs, Whipple and Robscheit-Robbins [10] found beef stomach to be of but little value in inducing hemoglobin regeneration, in contrast to high potency of liver and kidney in this respect.

Further experience with the use of dried, defatted hog stomach has confirmed the efficiency of this material

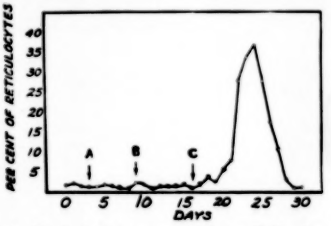

Chart 1.—The "reticulocyte response" was negligible after feeding dried muscle layer defatted with acetone (representing from 200 to 400 Gm. of fresh muscle) to a patient with pernicious anemia, in comparison to the response after whole stomach. Initial count of red blood cells, 1.07 million; white blood cells, 4,500; hemoglobin, 20 per cent (S.). *A*, stomach muscle, dried and defatted with acetone, 30 Gm. daily; *B*, 60 Gm.; *C*, whole stomach, dried and defatted, 30 Gm. daily.

as a source of the blood-maturing material. The stomachs of hogs are collected, the gross fat and mesentery are removed mechanically, and the material is chopped very fine. It is not necessary for the organs to be used immediately, and the blood maturing activity is not lost even if the material is from 12 to 18 hours old before desiccation is begun. It is believed that a secretion of the mucosa, possibly of the nature of an unnamed enzyme, acts on the muscle layer when the two are ground together. Either layer alone appears to possess very little potency when fed to patients with pernicious anemia (charts 1 and 2). After desiccation, the fat is removed with petroleum benzin. The result-

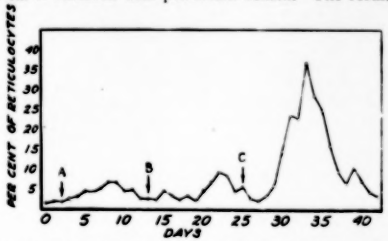

Chart 2.—The "reticulocyte response" after feeding dried mucosa alone (representing from 200 to 300 Gm. of fresh mucosa) was slight compared to the results after whole stomach was given to a patient with pernicious anemia. Initial count of red blood cells, 1.23 million; white blood cells, 3,600; hemoglobin, 31 per cent (S.). *A*, mucosa, dried, 30 Gm. daily; *B*, mucosa, dried, 60 Gm. daily; *C*, whole stomach, dried and defatted, 30 Gm. daily.

ing material is a dry granular powder, which swells in water but does not dissolve. About 14 to 15 Gm. of the dried material represents 100 Gm. of fresh stomach. A complete remission has been instituted in a patient with pernicious anemia with 15 Gm. of this material daily, but the dosage that is clinically most effective is 10 Gm. of the powder for each million deficit in the red blood cell count. The maintenance dose is 10 Gm. from five to seven times a week when the red blood cell count reaches 4.5 to 5 million per cubic millimeter. The ten Gm. dosage represents some margin of safety, as effective remissions have been maintained with 7 Gm. daily. The dried stomach may be taken in water or tomato juice, either as a thick purée or in suspension. It may be taken with or between meals.

The response to the therapy may be judged by three criteria. During the first week an improvement in the appetite and some of the subjective feelings develops. From the fourth or fifth day to the end of the second week, the increase in reticulocytes may be used as a guide, and after the second week the increase in the red blood cell count and in the percentage of hemoglobin. So far, no gross differences in the course of the remission or the response of the neurologic lesions to therapy from those obtained with liver have been noted. The absence of the peculiar liver taste as well as the possibilities for the production at a lower cost than liver extract are factors in its favor.

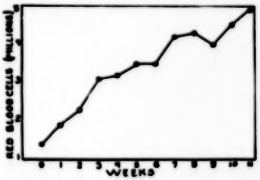

Chart 3.—Average red blood cell counts of forty-one patients with pernicious anemia, in relation to the number of weeks of treatment with dried stomach. The decrease during the ninth week may only be apparent, as the average represents but three observations.

The accompanying table shows the initial red blood cell count before and after treatment, and reticulocyte responses (maximum increase in percentage of young red blood cells during the first two weeks) compared to

4. Castle, W. B.: Observations on the Etiologic Relationship of Achylia Gastrica to Pernicious Anemia: I. The Effect of the Administration to Patients with Pernicious Anemia of the Contents of the Normal Human Stomach Recovered After the Ingestion of Beef Muscle, Am. J. M. Sc. **178**: 748 (Dec.) 1929. Castle, W. B., and Townsend, W. C.: II. The Effect of the Administration to Patients with Pernicious Anemia of Beef Muscle After Incubation with Normal Human Gastric Juice, ibid. **178**: 764 (Dec.) 1929.

5. Sturgis, C. C., and Isaacs, Raphael: Desiccated Stomach in the Treatment of Pernicious Anemia, J. A. M. A. **93**: 747 (Sept.) 1929.

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7. Conner, H. M.: The Treatment of Pernicious Anemia with Raw and Cooked Swine Stomach, J. A. M. A. **94**: 388 (Feb.) 1920.

8. Wilkinson, J. F.: Pernicious Anaemia: Preliminary Report on the Results Obtained by Treatment with Certain Preparations of Stomach, Brit. M. J. **1**: 236 (Feb.) 1930.

9. Renshaw, Arnold: Treatment of Pernicious Anemia with Desiccated Hog's Stomach, Brit. M. J. **1**: 334 (Feb.) 1930. Snapper, I., and Dupreez, J. D. G.: Treatment of Pernicious Anemia with Powder of Dried Pig Stomachs, Nederl. Tijdschr. v. Geneesk **74**: 745 (Feb.) 1930.

10. Whipple, G. H., and Robscheit-Robbins, F. S.: Blood Regeneration in Severe Anemia: V. Influence of Striated and Smooth Muscle Feeding, Am. J. Physiol. **79**: 260 (Jan.) 1927.

the calculated[11] maximum reticulocyte responses expected from adequate liver extract therapy. Some patients left the hospital before all the data were obtainable. The blood count given as the one after a period of treatment is the first count in which 4 million red blood cells per cubic millimeter was reached. In all cases, however, therapy was continued and red blood cell counts around 4.5 to 5 million were maintained. It will be noted that the average initial count for all the patients in the group whose red blood cell count is reported as 4 million or more after treatment was 1.84 million per cubic millimeter, and that the average count after treatment for 6.6 weeks was 4.3 million per cubic millimeter, on the desiccate made from 200 Gm. (average) of stomach daily.

Results of Treatment

	Before Treatment		Grams of Stomach per Day, Calculated as Fresh Tissue	Maximum Reticulocyte, per Cent	Calculated Maximum Reticulocyte, per Cent	Period of Treatment, Days	After Treatment	
Patient No.	Red Blood Cells, Millions per C.Mm.	Hemoglobin, per Cent (Sahli)					Red Blood Cells, Millions per C.Mm.	Hemoglobin, per Cent (Sahli)
1	0.68	17	166	36.5	41.6-50.4	18	1.51	33
2	0.86	18	214	14.9	34.6-41.6	12	1.37	28
3	0.89	19	204	30.5	34.6-41.6	30	3.36	75
4	0.90	39	187	14.1	34.6-41.6	35	4.10	75*
5	0.91	18	274	55.4	34.6-41.6	40	3.31	58
6	0.92	16	143	47.2	34.6-41.6	21	3.90	59
7	0.98	25	153	30.0	31.7-38.0	46	3.27	70
8	1.00	24	205	13.5	31.7-38.0	56	4.30	81*
9	1.01	30	275	35.4	31.7-38.0	39	3.60	57
10	1.10	29	200	18.8	29.0-34.6	42	4.00	77†
11	1.10	28	211	34.1	29.0-34.6	63	4.30	102
12	1.18	30	275	54.1	26.5-31.7	10	‡	‡
13	1.20	29	143	21.3	26.5-31.7	56	4.60	81†
14	1.20	33	281	36.4	26.5-31.7	31	5.60	79
15	1.30	25	187	36.0	24.3-29.0	28	4.50	76
16	1.30	30	107	24.1	24.3-29.0	51	4.20	72
17	1.42	33	275	32.6	22.2-26.5	11	2.22	49
18	1.60	32	256	25.3	18.7-22.3	16	3.24	62
19	1.60	40	125	17.8	18.7-22.3	56	4.50	76†
20	1.62	30	256	36.6	18.7-22.3	22	3.37	68
21	1.70	50	250	‡	‡	35	4.60	75
22	1.74	38	275	27.0	17.1-20.4	14	3.24	75
23	1.80	44	211	13.6	15.6-18.7	56	4.60	80
24	1.80	38	220	‡	‡	56	4.30	85
25	1.80	36	143	16.6	15.6-18.7	70	4.20	64
26	1.94	47	205	11.6	14.1-17.1	45	2.32	63
27	2.12	50	233	5.1	11.6-14.1	13	3.14	66*
28	2.16	39	285	17.4	10.5-12.9	31	4.60	59
29	2.20	49	277	17.6	10.5-12.9	35	4.50	83
30	2.29	51	275	20.4	9.4-11.6	16	3.04	70
31	2.33	58	207	10.2	9.4-11.6	45	4.60	99
32	2.37	62	206	4.8	8.4-10.5	44	4.50	90
33	2.40	75	200	‡	‡	28	4.30	80
34	2.70	50	300	13.1	5.7- 7.5	15	3.04	67
35	2.80	64	165	5.1	4.9- 6.6	42	4.10	82
36	2.80	51	215	5.0	4.9- 6.6	49	4.50	83
37	2.80	71	206	5.7	4.9- 6.6	56	4.20	94
38	2.86	57	187	3.3	4.1- 5.7	57	4.00	84
39	2.85	68	207	8.0	4.1- 5.7	8	3.40	80

* Had a "reticulocyte response" to liver or other therapy just before treatment was started.
† Stomach not defatted.
‡ Data incomplete.

Chart 3 shows the average red blood cell counts by weeks, the increase being about 500,000 red blood cells per cubic millimeter each week. The increase during the first week, however, may be negligible, or there may even be slight decrease in the number of erythrocytes. This, together with the fact that, owing to inadequate technical methods, a change in reticulocytes may be overlooked, may lead one to feel that the treatment is not effective. However, the increase in the total red blood cell count as weeks progress shows the improvement.

There appears to be a definite correlation between the daily dosage and the number of days required for the red blood cell count to reach normal, but variations appear in individual patients, depending on the previous therapy, the degree of the anemia and the state of the blood-forming organs at the beginning of the treatment. Beef and calf stomach appear to possess some activity in inducing a remission, and the relative potency of material derived from different parts of these stomachs is being studied.

11. $R = \frac{0.73 - 0.2\ Eo}{0.73 + 0.8\ Eo}$, R = maximum percentage of reticulocytes observed during treatment. Eo = red blood cell count when treatment was begun. (Riddle, M. C.: Personal communication to the authors; data to be published.)

SUMMARY AND CONCLUSIONS

1. Dried, defatted hog stomach may be used as a therapeutic agent in inducing and maintaining a remission in patients with pernicious anemia.

2. A remission may be induced with dried material (15 Gm.) corresponding to 100 Gm. of fresh stomach, and the remission may be maintained with 7 Gm. of this material. However, a safe clinical dosage is 10 Gm. for each million red blood cell deficit in the red blood cell count. The maintenance dose is 10 Gm. from five to seven times a week.

3. So far no gross differences have been noted in the clinical features of the liver-induced remission and that after stomach therapy.

TREATMENT OF SECONDARY ANEMIA*

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In the treatment of secondary anemia, the presence of organic disease, particularly obscure organic disease, must be recognized. One obscure condition, which may be overlooked, is chronic recurrent or persistent loss of blood from the gastro-intestinal tract. Persistent loss of blood and obscure severe anemia, in our experience, have been seen associated with carcinoma of the stomach, duodenal ulcer, malignant growths of the small bowel, benign ulcer of the small intestine, benign ulcer of the cecum, and polyp of the colon. It should be stressed that these conditions may be present with little, if any, abdominal complaint and in the presence of negative roentgenologic examinations. Other conditions that cause severe chronic secondary anemia, which under certain circumstances may be overlooked, are atypical myxedema and chronic glomerular nephritis.

In addition to elimination of organic disease, a workable classification of chronic secondary anemia is necessary. This classification should be simple and should take into account both the clinical characteristics of the case and the morphologic characteristics of the blood. In a study of this kind, anemia that is obviously secondary to malignant disease, tuberculosis, nephritis, acute hemorrhage, peptic ulcer or the various types of blood dyscrasia is not considered. Obscure secondary anemia may be due to chronic hemorrhage, to chronic infections and to dietary and other deficiencies; in addition there will remain a group which must at present be regarded as indeterminate, idiopathic or cryptogenetic. The divisions indicated in the foregoing sentence are offered as a clinical classification of cases in which obvious organic disease has been excluded. Secondary anemia, however, should also be studied from the morphologic standpoint, as determined by a

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study of blood smears. In this we have followed the classification of Watkins:[1] (1) the hemoglobin deficiency type in which regeneration of cells is good and there is a normal or nearly normal erythrocyte count, and marked hypochromasia; (2) the chronic semiaplastic type in which the color index is moderately high and there is a shift to the right of neutrophils but absence of marked macrocytosis and anisocytosis of the erythrocytes, and the neutrophil of pernicious anemia is absent; (3) the toxic type, which is most easily recognized by a study of the leukocytes; the neutrophils shift to the left, have heavy, irregularly lobated nuclei, cloudy chromatin in the nuclei, and granules with abnormal staining reaction; (4) chlorotic type of anemia in which marked anochromasia is present, the red cell presenting the appearance of a wedding ring, and (5) potential pernicious anemia, a most important small group, in which there is a possibility of the development of pernicious anemia; characteristics of the polymorphonuclear neutrophil are a shift to the right and, most important of all, shrunken lobes and fine strands between the lobes; this is the so-called neutrophil of pernicious anemia.[2]

These clinical and morphologic classifications are valuable because they furnish pigeonholes, help to clarify ideas, and lead to new suggestions. However, many cases cannot be pigeonholed; they have the features of two clinical groups and mixed morphologic pictures. For instance, there are many cases in which clinically there are both chronic hemorrhage and focal infection and morphologically so-called toxic features may be present in blood that is characteristic of the hemoglobin deficiency type or of the semiaplastic type. By morphologic classification, active regeneration, lack of regeneration, destruction of blood, and the presence of toxemia may be suspected. Something may also be learned concerning destruction of blood by the icteric index, the van den Bergh reaction and the pigments in the duodenal contents.[3] It should be emphasized, however, that morphologic classification should not be allowed to make one less assiduous in one's search for an organic lesion.

FETAL LIVER

In the last eighteen months, among other methods of treatment, we have conducted a clinical trial of the administration of desiccated fetal liver. We wish to make only a general statement at this time concerning the results of the administration of desiccated fetal liver in a group of cases in which a morphologic diagnosis of secondary anemia of the hemoglobin deficiency type has been made, and in which the clinical diagnosis has fallen under the following headings: cryptogenetic, chronic hemorrhagic, chronic infectious, and miscellaneous. It should be emphasized that these are all cases of obscure anemia; cases in which severe hemorrhage or organic disease clearly accounted for the anemia were not included.

In the preparation of the powder of desiccated fetal liver, the livers are obtained from fetal calves whose total length is less than 70 cm. It was found that the hematopoietic activity of the blood islands of the hepatic parenchyma was most active in fetuses up to 70 cm. in length. The livers are put through a meat grinder and the resultant pulp is dried in a vacuum at a temperature of 60 C. The desiccated powder represents a concentration of approximately six times; 17 Gm. of powder is equivalent to 100 Gm. of the raw liver. A heaping tablespoonful is approximately 17 Gm. The dosage given in these cases has been one heaping dessertspoonful three times a day, or approximately the equivalent of 200 Gm. of raw liver a day. In some of the later cases, doses have been one heaping tablespoonful, or the equivalent of 300 Gm., of raw liver a day. The powder is usually taken in orange juice, but some patients have found it to be less unpalatable in buttermilk or catsup. An analysis by Osterberg showed that fetal liver contains only 0.011 Gm. of metallic iron in 100 Gm. of liver.

TABLE 1.—*Results Following Administration of Desiccated Fetal Liver for Secondary Anemia of the Hemoglobin Deficiency Type*

	Improvement, Grade								
	0		1		2		3	4	
Clinical Diagnosis	Inadequate Dosage	Adequate Dosage	Inadequate Dosage	Adequate Dosage	Inadequate Dosage	Adequate Dosage	Adequate Dosage	Adequate Dosage	Total Cases
Cryptogenetic, secondary anemia	1	..	8	1	3	7	13	16	49
Menorrhagia, graded 1 and 2	..	..	..	4	2	1	11	8	26
Menorrhagia, graded 3	1	..	..	..	..	2	4	4	11
Chronic hemorrhage from ulcer	..	1	..	..	..	1	1	1	5
Focal infection	..	..	..	..	2	3	9	7	21
Miscellaneous	1	..	..	..	..	4	2	1	8
Total	3	1	8	5	7	18	40	38	120

The results in 120 cases of obscure, chronic secondary anemia are demonstrated in table 1. Improvement graded 3 or 4 indicates definite improvement in the blood and in the general condition. The average concentration of hemoglobin was in the neighborhood of 7 Gm. in each hundred cubic centimeters of blood (40 per cent). In many instances, severe anemia was present. In order to be conservative with regard to statement of the improvement obtained in cases in which there was slight reduction of hemoglobin, to 60 or 65 per cent, and in which the response was sufficiently good for the concentration of hemoglobin to be restored to normal, improvement was graded only as 2. Of the 120 cases, dosage in eighteen was inadequate. Of the 102 cases in which dosage was adequate there was improvement, graded 3 or 4, in seventy-eight, or all but twenty-four, while in only one case in which dosage was adequate was there no response. The cryptogenetic group, in which a clinical cause could not be found for the anemia, responded best and most rapidly; this syndrome was defined by Watkins[1] in 1929. It should be stated that the relatively large number of cases in the cryptogenetic group does not give an indication of the occurrence in general of cryptogenetic anemia of the hemoglobin deficiency type, because in this consideration all cases in which the cause of the anemia was obvious have been excluded. In cases in which there was menorrhagia, response was good in spite of loss of blood, and in many of these cases menstruation became less profuse. In only a few of the more severe cases, curettage was performed, and the response in general was analogous whether curettage had been performed

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2. Downey, Hal: Personal communication to the authors. Heck, F. J., and Watkins, C. H.: Unpublished data. Watkins, C. H., and Berglund, Hilding: Analysis of Morphological Blood Changes in Pernicious Anemia Following Administration of Liver, Proc. Soc. Exper. Biol. & Med. **25**: 206-209 (Dec.) 1927. Naegeli, Otto: Blutkrankheiten und Blutdiagnostik, Berlin, Julius Springer, 1923.
3. Douglas, A. H., and Tannenbaum, H.: The Mechanism of Secondary Anemia, Arch. Int. Med. **45**: 248-256 (Feb.) 1930.

or not. Patients with marked menorrhagia were not included in the study because in these instances surgical treatment was the most important factor in recovery. The cases with menorrhagia, in other respects, corresponded to those of the cryptogenetic group, and it is possible that mild, or moderate, menorrhagia may be a feature in these chronic cases of secondary anemia in which the morphologic characteristics are those of the type of anemia with deficiency of hemoglobin. In cases in which there was marked focal infection, response was satisfactory even though focal infection was not eliminated.

In many cases it was necessary to continue the administration of the powdered fetal liver for at least two months before satisfactory improvement was obtained. This observation corroborated Whipple's [4] conclusion that in secondary anemia a long period of time is necessary to permit the formation of hemoglobin-building factors, preceding the formation of hemoglobin itself. Recurrences occurred in about a third of the cases. These were usually mild and responded quickly to the administration of fetal liver. In many of the cases the blood has remained normal for more than a year without treatment.

Table 2 is constructed from a group of cases in which administration of powder of desiccated fetal liver was successful after failure had followed what seemed to be adequate dosage of iron and adult liver, and administration of a diet selected for its content of vitamin and which contained 2 ounces (60 Gm.) of liver daily. It is not clear why the condition of these patients should have improved after they had taken fetal liver when other lines of treatment had failed. It has also been observed that a few patients whose condition has responded only slightly to administration of fetal liver have been successfully treated by other methods.

TABLE 2.—*Results Following Administration of Desiccated Fetal Liver for Secondary Anemia of the Hemoglobin Deficiency Type*

	Improvement, Grade				
	2	3		4	
	Adequate Dosage	Inadequate Dosage	Adequate Dosage	Adequate Dosage	Total Cases
Failure on iron	3	..	5	6	14
Failure on adult liver	4	..	3	7	14
Failure on high vitamin diet	..	2	2	3	7
Total					35

Although in many of the cases the results are confusing and accurate interpretation is impossible, it can be stated in general that satisfactory improvement has been obtained in cases of secondary anemia in which a morphologic diagnosis of hemoglobin deficiency has been made and in which the clinical diagnosis has been chronic infectious, chronic hemorrhagic and cryptogenetic secondary anemia. The cryptogenetic type of deficiency hemoglobin responds best and may constitute a syndrome hitherto not clearly defined.

BONE MARROW

Ninety-eight patients have been treated by means of beef bone marrow, obtained from long bones, which had been melted and strained; the resulting fatty suspension was fed in doses of 6 grains (0.4 Gm.) a day.

In these ninety-eight cases, morphologic examination of the blood revealed the picture described by Watkins as that of the semiaplastic type of secondary anemia. There were reduction in the number of erythrocytes, normochromasia, and evidences both of regeneration and of degeneration, with varying degrees of toxicity.

Forty-five of the ninety-eight cases were in association with pregnancy. Practically all uncomplicated cases of the anemia of pregnancy would be classified as examples of the semiaplastic type of secondary anemia, with a shift of neutrophils either to the right or to the left. The neutrophils gave evidence of marked toxic changes, and the toxicity apparently was increased in direct proportion to the duration of pregnancy. The number of leukocytes averaged approximately 11,000 in each cubic millimeter of blood. The erythrocytes displayed normochromasia, with slight anisocytosis. Spontaneous improvement of this type of anemia is seen after delivery. In a few cases, the type of anemia with deficiency of hemoglobin was seen in association with pregnancy. In these it would seem that anemia with hemoglobin deficiency is present prior to conception and that this persists after delivery. From the standpoint of treatment it need only be stated at this time that the administration of bone marrow, in doses of 6 grains (0.4 Gm.) daily, has not been followed by satisfactory response in the semiaplastic type of secondary anemia of pregnancy.

The remaining fifty-three cases of semiaplastic anemia fell into various clinical groups, chiefly into the indeterminate idiopathic or cryptogenetic, chronic hemorrhagic and chronic infectious types. In nineteen cases the results of treatment were indeterminate; in nineteen there was no response, and in fifteen there were varying degrees of response. Clearly in this miscellaneous group of cases of semiaplastic anemia the results following administration of bone marrow have not been satisfactory. An occasional case responded excellently, but it cannot yet be determined that the cases which responded exhibited features different from those of many cases in which a response was not obtained.

In general, then, our experience with the administration of bone marrow in the semiaplastic type of secondary anemia in ninety-eight cases has been unsatisfactory. We do not believe, however, that bone marrow should yet be discarded in the treatment of secondary anemia. It should be given further trial in other types of anemia and in larger dosage. Incidentally, one case of agranulocytic angina in our experience has responded remarkably to bone marrow. It is possible that red marrow may be effective in one type of anemia and yellow marrow in another.

COMMENT

An enormous amount of investigation will be necessary before a satisfactory conception of the treatment of secondary anemia can be reached. Three types of study should be carried out: experimental work on animals, clinical investigation from the experimental point of view, and clinical trial and error. Only a few well controlled clinical trial studies have been reported, and it is not possible to draw conclusions from the great number of papers that have been published on the subject. A method of approach is essential. Patients should first be subjected to a period of observation under the conditions which are to obtain during treatment; this should be of at least ten days' duration. The effect of a diet and a regimen applied as a routine

4. Whipple, G. H.; Robscheit-Robbins, S. F., and Walden, G. B.: Blood Regeneration in Severe Anemia: XXI. A Liver Fraction Potent in Anemia Due to Hemorrhage, Am. J. M. Sc. **179**: 628-643 (May) 1930.

should be determined first. When drugs are administered they should be given after such a period of control and in a manner which will obviate, as far as possible, confusion of one effect with another. Confessedly, this method has many practical difficulties and it is true that something may be learned from treatment of patients outside of hospitals if one line of treatment is followed at a time. It is suggested, however, that all of those who are in a position to do so study the subject by well controlled methods of treatment in order that satisfactory data may be obtained. The work of Murphy and Powers is outstanding in this regard. Excellent clinical investigation from an experimental point of view has been reported by Minot and by Castle.

In contradistinction to the unsatisfactory nature of most clinical reports, the experimental work on secondary anemia has been of the highest order. The logical methods of Whipple, Robscheit-Robbins and their associates cannot be too highly commended. The experimental work of Hart, Steenbock and their co-workers has led to suggestions which demand clinical investigation.

What, then, may be logically deduced at the present time from the literature on experimental and clinical data concerning the treatment of secondary anemia?

1. Experience so far indicates that the liver extract number 343 of Cohn and Minot is not effective, or is only very slightly effective, in secondary anemia. Robscheit-Robbins and Whipple [5] estimated that liver extract contains only 10 or 20 per cent of the potency of liver in experimentally produced chronic hemorrhagic anemia in dogs. On a theoretical basis, suggested by the work of Castle,[6] it is possible that liver extract may be effective in the anemia associated with organic disease of the stomach, because an activating substance in the gastric wall may be destroyed in such cases. Hart [7] stated that extract of liver, together with iron, is effective in the nutritional anemia of rats produced by a diet of milk. Middleton [8] reported no response from extract of liver in six cases. Coates and Delicati [9] reported some success with the extract and the Minot-Murphy diet in anemia associated with infectious arthritis. However, the literature does not indicate consistent results from the administration of liver extract alone.

2. Whole, raw, adult liver and whole cooked liver are much more effective in the treatment of secondary anemia than liver extract. Whipple [10] has demonstrated experimentally that whole liver must be fed over a long period of time, probably because hemoglobin-building factors must first be formed before the synthesis of hemoglobin can be attained. He [4] has isolated a fraction from whole liver which has 70 per cent of the potency of whole liver when fed to anemic dogs. Dyke [11] stated that in certain cases of secondary anemia liver is effective in causing a response of reticulocytes and in raising the blood count; it is especially effective in cases in which there is failure of regeneration after loss of blood. Experimental and clinical evidence attest to the value of whole liver.

3. The report of Berglund, Watkins and Johnson [12] on four cases, and this general review of 120 cases, demonstrate that desiccated fetal liver is effective in cryptogenetic, hemorrhagic and infectious types of secondary anemia in which the morphologic features are those seen in the hemoglobin deficiency type of secondary anemia. Its efficacy has not yet been compared with that of adult liver. It has not been supplemented with iron in a large group of cases, nor have the fractions of fetal liver been tested. These are all problems for the future.

4. Experimental work, both in nutritional and in chronic hemorrhagic anemia, and also clinical experience, indicate the effectiveness of iron in large doses. Moreover, reports show that, both from an experimental standpoint and from clinical experience, iron supplements the action of other substances, and in addition to providing a supply of iron it probably has a "salt action." Robscheit-Robbins and Whipple,[13] and also Hart, have shown that liver, together with iron, is more effective than liver alone or iron alone in treating experimental anemia. Dyke's clinical report indicates that the effect of liver is greatly enhanced by the use of iron. Keefer and Yang [14] have reported well controlled cases which demonstrate that liver and iron in combination are more effective than either alone. Cabot [15] reported a better result with liver and ferrous lactate than with iron alone. Murphy and Powers [16] reported on six patients treated by a balanced diet, large amounts of liver, and large doses of iron. Their recovery was better than that of those who did not receive iron.

5. Dietary deficiency is a well recognized cause of obscure secondary anemia, aside from that of sprue, pellagra and scurvy. Koessler, Maurer and Loughlin [17] stated that regeneration of blood cannot occur without the presence of vitamin A; many complicating factors, however, enter into this work. Minot [18] has emphasized that deficiencies may be due to various other factors: lack of an ingredient necessary to the manufacture of a specific molecule; failure of supply of enzymes; lack of certain elements such as iron, calcium and iodine; insufficient amounts of certain components of food, or an oversupply of certain food factors. He stressed the importance of using a sufficient amount of the substance employed in trying various methods of treatment. Whipple [19] called attention to the anemia produced by

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10. Whipple, G. H., and Robscheit-Robbins, F. S.: Blood Regeneration in Severe Anemia: III. Iron Reaction Favorable, Arsenic and Germanium Oxide Almost Inert, Am. J. Physiol. **73**: 419-430 (May) 1925.

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18. Minot, G. R.: Some Fundamental Clinical Aspects of Deficiencies, Ann. Int. Med. **3**: 216-229 (Sept.) 1929.

19. Whipple, G. H.: Experimental Anemias, Diet Factors and Related Pathologic Changes of Human Anemias, J. A. M. A. **91**: 863-867 (Sept. 22) 1928.

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an excess of dairy products to the exclusion of other foods; this is a common condition in infants. Undoubtedly one of the fundamental necessities in the treatment of anemia is a well balanced diet. The clinical reports of Conner [20] indicated the value of a diet selected for its richness in vitamins, including large quantities of fruit juice and vitamin-containing vegetables and fats, supplemented by cod liver oil, yeast, 2 ounces (60 Gm.) of liver, and 30 or 60 grains (2 or 4 Gm.) of ferric citrate daily. On the basis of experimental work, diet for anemia should contain liver, kidney, beef muscle, gizzard, blood sausage, apricots, peaches and prunes. Robscheit-Robbins and Whipple [21] concluded that green vegetables probable have been overrated as hemoglobin-building foods and that various minerals may be more concerned in the process than the chlorophyll nucleus. A balanced diet, rich in vitamins and hemoglobin-building foods, is frequently the only regimen necessary for the cure of secondary anemia. Such diets, together with large doses of iron, constitute a logical procedure.

6. The pendulum may have swung too far away from the use of transfusions in secondary anemia. It is logical to assume that transfusions are indicated in chronic anemia, whether it is of the nutritional, infectious or chronic hemorrhagic type when a very low level of blood has been present for a long period of time and morphologic studies give evidence of inactive regeneration. It is also logical to assume that very severe anemia, associated with low volume of whole blood, will be rapidly benefited by transfusions and an increase in blood volume; this is particularly true of the cases in which anemia accompanies starvation. Before the days of treatment by means of liver these types of anemia responded well to other medical measures after one or two transfusions, and much time was saved in returning the patient to health. Nevertheless, transfusion should, we believe, be regarded as an emergency measure or a preliminary adjunct to the treatment of anemia, and it should be understood that these remarks apply to secondary anemia, not pernicious anemia.

7. Arsenic has been used for many decades in the treatment of both primary and secondary anemia, although there has been no adequate justification for its administration. Hart reported a slight temporary effect in the nutritional anemia of rats. Isaacs [22] has reviewed the subject and has published experiments on mice which indicate that arsenic depresses the production of erythrocytes, but that after elimination of arsenic there occurs increased delivery of erythrocytes. Whipple and Robscheit-Robbins [10] found that arsenic did not have an appreciable effect experimentally on regeneration of erythrocytes or production of hemoglobin. At the present state of knowledge, therefore, there seems to be no adequate justification for the administration of arsenic in secondary anemia in the absence of syphilis.

8. Feedings of spleen and of bone marrow were found by Whipple and Robscheit-Robbins [23] to be much less potent in the treatment of experimental anemia than liver or kidney. Work by Danilewsky,[24] Krumbhaar and Musser,[25] Eddy and Downs [26] did not disclose a marked effect experimentally. The Leakes [27] concluded that extracts of spleen and bone marrow combined were more potent than either alone. Clinically, in our experience with ninety-eight cases of chronic secondary anemia of the semiaplastic type, consistent effect from this treatment was not noted. This does not mean that bone marrow may not still prove to be effective in other types of anemia, or in other diseases. Further investigation with bone marrow should be undertaken, larger dosage should be tried, and the effect of red marrow compared with yellow. However, there is at present no satisfactory clinical evidence of the effectiveness of spleen or bone marrow.

9. It has been suggested, in the reports of Jones and his co-workers,[28] that nuclear extractives are effective in secondary anemia. Corroborative work has not been done.

10. Waddell, Elvehjem, Steenbock and Hart [29] have demonstrated that copper acts as a supplement to iron in synthesis of hemoglobin in the nutritional anemia of chicks and rats. Titus, Cave and Hughes [30] concluded that manganese gives nearly as good a response as copper in the building of hemoglobin. Very small quantities of copper and possibly other metals seem to be sufficient and these are obtained from the balanced diet. Mills [31] has reported improvement in cases of the idiopathic type of anemia with deficiency of hemoglobin during the administration of copper and large doses of iron. Clinical trials, however, have demonstrated neither the efficiency nor the inefficiency of the independent administration of copper and manganese.

11. While intravenous and intramuscular medication and subcutaneous injections of whole blood are rather widely used in the treatment of secondary anemia, the literature is barren on the subject and one is forced at present to conclude that they are at least unnecessary procedures.

SUMMARY

No diagnosis may be more difficult or more interesting than that of the cause of chronic secondary anemia. Elimination of organic disease may require extended study. Especial emphasis should be placed on examination of the stools for occult blood, and abdominal exploration may be advisable if loss of blood is accompanied by even mild abdominal symptoms. The more obscure cases may be classified from both the clinical and the morphologic points of view. Knowledge concerning treatment will in this way be developed on a sounder basis. The results of experimentation on animals,[32] clinical investigation and clinical trial indicate that in the cryptogenetic, chronic hemorrhagic, and

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chronic infectious types of anemia, and in those due to dietary deficiency first place should be given to a balanced diet, rich in vitamins and hemoglobin-building substances such as whole adult liver, whole fetal liver, kidney, red meats, apricots, and peaches and prunes, together with large doses of iron and 90 grains (6 Gm.) a day of ferric citrate, equivalent to 1 Gm. of metallic iron. There is apparently at present no good reason for the use of arsenic, splenic extract, bone marrow, copper, or intravenous and intramuscular medication. Clinical trial has indicated that time is an important element, because, as Whipple has pointed out, hemoglobin-building factors must be produced before hemoglobin itself can be formed.

The effects of whole adult liver, whole fetal liver, and especially the various fractions of liver, singly and in combination with iron, copper and other metals, must be investigated in the various types of anemia seen in man. Nutritional studies, particularly as related to food imbalance and food deficiencies, must be expanded and applied clinically. It is possible that certain types of secondary anemia may be benefited by the extract of Cohn and Minot when it is used in conjunction with other substances. A thorough clinical test should be made of the fractions described by Whipple and Robscheit-Robbins, and their co-workers. Especially should all clinical trials of these various substances be made singly, then in combination, and with cases satisfactorily controlled.

The problem is the determination of the kind of treatment that is suited to each particular type of secondary anemia.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ISAACS AND STURGIS, AND DRS. GIFFIN AND WATKINS

DR. A. B. BROWER, Dayton, Ohio: At Miami Valley Hospital we have treated twenty-two cases with dried stomach. The results have been uniformly good. A favorable blood response is found in a few days after its administration. Many patients note improvement in symptoms during the first week of its use. We have had no difficulty in having patients take it over a long period of time without any marked aversion. It has not been necessary to use transfusion since the use of dried stomach has been instituted.

DR. FRED M. SMITH, Iowa City: It is extremely interesting that another source of blood regenerating principle has been discovered for the treatment of pernicious anemia. This work raises the question as to the relative importance of the known source of the active principle. So far this active principle is known to be present in stomach, liver and kidney. Is it not possible that it may originate in the stomach and be stored in the liver? We have treated four patients with desiccated hog stomach, with fairly good results. The reticulocyte peak following the administration of desiccated hog stomach was not so high as that induced by liver extract but persisted over a longer period. The regeneration in the two, however, compared favorably.

DR. REGINALD FITZ, Boston: Drs. Isaacs and Sturgis did not sufficiently emphasize one point that is of very practical value. It is at first a simple matter to build up the blood. The patient does not mind taking liver or liver extract. The blood count quickly jumps up toward normal and the patient soon feels perfectly well. But the authors have not emphasized the fact that this is only the beginning of treatment. Once a patient becomes careless in regard to the amount of liver he takes, and does not keep his blood at normal, the disease continues to progress, especially in its cord manifestations. Patients often resent the sight or taste of liver or liver extract. Isaacs and Sturgis have made an important contribution by describing a new substance with liver-like action which can be given in a more concentrated form and which, on this account alone, may prove to be very useful. The more concentrated and tasteless that active liver preparations can be made, the more valuable are they going to be. A second point worth mentioning is that anybody can now go to a drug store and buy various kinds of liver extracts. Patients like to experiment. It is important to emphasize to all patients with pernicious anemia that they must take a potent liver extract or substance. Otherwise they are merely throwing away money and time. Drs. Giffin and Watkins have discussed some of the difficulties encountered in recognizing and classifying various types of secondary anemia. Perhaps it is worth emphasizing how easy it is for a busy practitioner to content himself with the diagnosis of secondary anemia, and to tell his patient to take iron, a high vitamin diet, perhaps a little cod liver oil, thrown in for luck, and a certain amount of milk each day, because that is wholesome, and to be perfectly contented with such a program of diagnosis and treatment. Yet by pursuing such a course, the fundamental diagnosis may be overlooked entirely. The lesson I have learned is the importance, in the first place, of making an accurate diagnosis of the type of secondary anemia encountered, and, in the second place, of employing proper treatment for it. I was glad that the authors emphasized the possible usefulness of transfusions. Nowadays it has become the fashion not to use transfusion at all frequently. It must be remembered, however, that transfusion may still be an important form of therapy. Lastly, I want to ask two questions: Is it possible that deficiency diets are not only deficient in vitamins but also deficient in minerals as well, and is this a point to be borne in mind? Is there any evidence that iron given by intramuscular or intravenous injection is more potent or useful than when administered by mouth?

DR. RUSSELL M. WILDER, Chicago: Dr. Ernestine Kandel of the department of medicine, University of Chicago, asked me to mention an observation she has made in our clinics. It was somewhat uncertain, from the publications that had appeared as to whether desiccated hog stomach necessitated the accompanying use of meat in the diet, as might have been suggested from Castel's original observation that gastric juice alone was without effect, but gastric juice acting with meat was effective. Dr. Palmer, also of the department of medicine of the University of Chicago, repeating Castel's work, gave as much as a liter of strong dog's gastric juice to patients with pernicious anemia daily for fourteen days without seeing any effect on the reticulocytes when meat was withheld. The question then was whether desiccated hog stomach, like gastric juice, required the presence of meat in the food to manifest activity. I think Dr. Kandel has answered this because in six typical cases of pernicious anemia that have been treated with desiccated hog stomach without meat, the reticulocyte rise and subsequent elevation of the erythrocyte count have been satisfactory. These patients were on meat-free diets. As a matter of fact, the response in two cases were as dramatic as anything I have ever seen. The reticulocyte count in one case reached 48.8 per cent, in another case 42.4 per cent. The peak count in five cases occurred on the seventh day; the peak in the sixth case on the eighth day. The red count rise has followed satisfactorily after the reticulocyte rise, and it has seemed to us that desiccated hog stomach has been as effective as any of the liver preparations. An objection to desiccated hog stomach is its taste. This is disagreeable and I would be glad to hear if Sturgis and Isaacs have any suggestion as to methods of disguising that taste.

DR. RAPHAEL ISAACS, Ann Arbor, Mich.: Dr. Brower pointed out the clinical changes that take place quickly after taking dried stomach. These are practically the same as occur after taking a potent liver preparation. As far as we can say now, there is no startling difference in the clinical changes after taking liver or after taking dried stomach. We frequently encounter eosinophilia after a raw liver diet, but so far eosinophilia has not been a regular feature after feeding dried stomach. The question arises as to whether one can eat raw stomach or tripe. Raw stomach, ground up, will work. Whether tripe, as it is commercially prepared or as it is pickled, is effective, is a question for further study. In connection with the points brought out by Dr. Smith as to the amount of stomach in relation to the amount of liver, it is possible to produce with 67 Gm. of fresh stomach a change

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absolutely comparable to that occurring after taking 240 Gm. of liver. So in 67 Gm. of fresh stomach there is apparently as much material produced as from 240 Gm. of liver. Dr. Fitz brings out the point that patients may vary in their reactions and we have noticed that some patients will respond to liver better and that some patients will respond to stomach better. Stomach apparently does not have any greater effect on the neurologic changes than does liver, and apparently neither preparation produces any startling change in this respect. Dr. Wilder points out that a meat-free diet is perfectly feasible and if any patients do require a meat-free or protein-free diet, taking small amounts of dried stomach will give them a minimum amount of protein. Of course, liver extract will do the same thing. As to disguising the taste, we usually empty the dried stomach into a glass with tomato juice and the patients take it that way. Some patients cannot stand the taste of stomach and others cannot stand the taste of liver. They have their choice.

DR. HERBERT Z. GIFFIN, Rochester, Minn.: Dr. Conner of the Mayo Clinic has had a number of patients on gastric tissue. Some were given fundus and some pylorus. He obtained good results from both. In one patient to whom pylorus alone was recently administered without any other meat the reticulocytes rose to 65 per cent, the highest figure he has seen during the treatment of pernicious anemia. He has also fed honeycomb tripe in a certain number of cases but has not obtained consistent results. Another point that has not yet been mentioned is the matter of cost. Gastric tissue is inexpensive and this is an important fact in the treatment of the poor patient. In regard to Dr. Fitz's remark concerning minerals, Whipple has stated that he regards minerals as probably more important than the chlorophyll nucleus. Iron in the treatment of secondary anemia may be given by mouth and all of the ordinary preparations seem to be effective. It should, however, be given in large doses. I would emphasize that there is no indication in the literature that iron is any more effective intramuscularly or intravenously than by mouth. Fetal liver is an unpalatable compound and orange juice, tomato juice, and buttermilk have been most efficient in disguising the taste.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS ADOPTED THE FOLLOWING REPORT.

H. J. HOLMQUEST, Secretary.

GLASSES FOR PROTECTING THE EYE FROM GLARE

W. W. COBLENTZ, PH.D., D.Sc.
WASHINGTON, D. C.

Glare is generally understood to mean the temporary blurring of vision, with possible permanent injury to the retina by intense light (visible radiation) emanating from highly reflecting objects, such as sunlight reflected from water or from snow, or projected directly into the eye by an automobile headlight, or by a therapeutic lamp that is so situated that it shines directly into the eye.

The federal specifications for the protection of the eyes of industrial workers from injurious radiation specifies that "shade No. 3 filter lenses are intended for glare of reflected sunlight from snow, water, roadbeds, roofs, sand, etc."

The mean transmission of visible light through a shade 3 glass is 13.9 per cent and the tolerance ranges from a maximum of 23 per cent to a minimum of about 9 per cent. The specification requires a fairly high absorption of ultraviolet and infra-red rays, which means that the color of the glass is greenish.

The next lighter shade is 2, with a maximum transmission of 60 per cent, a minimum transmission of 23 per cent and a mean value of 37.3 per cent. But there is no provision in the Safety Code for the use of such a light shade. This is partly owing to the fact that no chances are being taken of possible injury, with attendant legal complications regarding compensation for alleged injury.

Personal experience extending over many years (during part of which time it was necessary to wear dark glasses continuously), on mountain elevations up to 14,000 feet, on Arizona highways covered with "alkali," and on average sidewalks, indicates that when the light is uncomfortably bright it is necessary to use a shade 3 glass (colored or "smoke") in order to relieve the discomfort from glare.

But granting that a lighter shade, 2, glass will answer the purpose, in either case these glasses are too dark to use for reading under the artificial light used in the average home. Some of the "eyestrain" experienced by wearers of dark glasses is due to their use in reading under artificial light.

Whether it is important to exclude the ultraviolet in sunlight remains undetermined. Those who sell glasses that absorb the ultraviolet may argue that the presence of ultraviolet in daylight will injure the eye. Others, with "nonglare" glasses that transmit the ultraviolet as freely as the universally used white crown glasses, may argue that, since the eye is accustomed to daylight, the absence of ultraviolet will injure the retina; that the ultraviolet is needed to keep the eye in a healthy condition. In the "albino eye" (that is, one lacking in pigmentation), beneficial results have been obtained by using glasses that absorb the ultraviolet.

For more than sixteen years I have been confronted with the problem of newly exploited glasses that come and go like the styles of hats and dresses. Ophthalmologists and opticians prescribe them in good faith, thinking that they have some inherent curative or protective property.

Some years ago amethyst-colored glasses were introduced, which have a weak absorption band in the blue (whence the pinkish color) but which transmit almost as much of the ultraviolet and the visible rays as the white crown glass generally used in spectacles. They were attractive in appearance and a good sales proposition, but aside from these facts I could not learn of any real advantage over the ordinary spectacle glass.

In recent years, various practically colorless glasses have been put on the market. In some the slight color has been introduced by chemicals added to the batch of glass, and in others the color has been brought about by exposure of the common white crown glasses to roentgen rays.

These glasses show little or no color except on being viewed edgewise. They are of two general classes, (1) such as "Softlite" and "Velvetlite," which are highly transparent to the ultraviolet rays, out to about 302 millimicrons (practically the same as the ordinary white crown spectacle lens) and (2) glasses like Cruxite and Viopake, which are opaque to the ultraviolet rays of wavelengths less than about 350 millimicrons.[1] All these glasses have practically the same transmission as common spectacle glasses for the infra-red rays.

Glasses of this type, at least the colorless shades, transmit from 85 to 90 per cent of the visible rays, as compared with ordinary white crown lenses, which transmit 91 per cent when perfectly clean, and from 85

1. Coblentz and Stair: Transmissive Properties of Eye Protective Glasses, Technologic Paper 369, Bureau of Standards, obtainable only from the Superintendent of Documents, Washington, D. C., price 10 cents, prepaid.

to 90 per cent, as commonly worn. They offer no protection from the glare of bright light defined in the beginning of this paper. Most reflecting surfaces (except snow and water) absorb a much greater amount of the ultraviolet than the visible rays. Hence, we are concerned mainly with the glare of visible light and not the presence of ultraviolet radiation.

The purpose of prescribing these glasses is not clear to me and to at least some ophthalmologists, who frankly confess that, aside from "style," they are confused as to the useful purpose served.

The cases are few in which it is important to reduce the intensity of average daylight, and since these glasses afford no protection from the glare of bright light it seems desirable to call attention to their optical properties.

In conclusion it is to be emphasized that when near ultraviolet ray lamps and sparks from induction coils, dark glasses should be worn to protect the eye from ultraviolet radiation. Unlike the sun, these artificial sources are in the direct line of vision and unavoidably shine into the eyes.

2737 Macomb, N.W.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies, 1930, p. 350).

The National Drug Company, Philadelphia.

Antimeningococcic Serum.—Marketed in packages of two 15 cc. syringes with apparatus for intraspinal injection; in packages of one 50 cc. double-ended vial with apparatus for intraspinal injection.

MERCUROCHROME-220 SOLUBLE (See New and Nonofficial Remedies, 1930, p. 271).

The following dosage form has been accepted:

Mercurochrome Suppository Aces: Suppositories representing a 2 per cent solution of mercurochrome-220 soluble (H. W. & D.) in a slightly aromatized hydro-glycero-gelatin base; each suppository weighs approximately 6.5 Gm. (100 grains) and contains ½ per cent of a mixture of equal parts of phenol, thymol, eucalyptol and menthol.

Prepared by Aces Laboratory, Inc.

REPORTS OF THE COUNCIL

SULPHOCOL AND SULPHOCOL SOL NOT ACCEPTABLE FOR N. N. R.

When this report was submitted to the American Chemical Laboratories the firm replied that it now claimed Sulphocol to contain from 15 to 20 per cent of elemental sulphur and offered to delete the claim: "There is, undoubtedly, a considerable absorption of the colloidal sulphur in the stomach, however, some of it by the digestive action of pepsin passes into the intestinal tract and deodorizes the faeces, which has actually been established to be a fact by a number of experiments and which may be easily proved by clinical use." It offered no evidence which permitted a revision of the Council's report in other respects. Accordingly, the Council authorized publication of the appended report with this explanatory statement.

W. A. PUCKNER, Secretary.

Sulphocol is the proprietary name applied by the American Chemical Laboratories to a product claimed to be colloidal sulphur, containing 20 to 25 per cent of elemental sulphur. When requesting consideration of this product the firm also presented "Sulphocol Sol," stated to be a 10 per cent solution of Sulphocol.

The firm claims that the preparations are ". . . useful where there is a deficiency of sulphur in the system . . ."; that ". . . when colloidal sulphur is administered internally it is exceedingly active, quickly combines with protein and is entirely absorbed in the stomach . . ."; that, administered internally, it will "completely deodorize the faeces. . ."

The manufacturer was communicated with in regard to the following:

1. A more definite statement of the method of preparation was requested and inquiry was made whether the injection of Sulphocol did not mean that a foreign protein was injected when Sulphocol was administered. In reply, the firm submitted certain details regarding the preparation of Sulphocol, stating: "As a protective colloid, . . . a sodium caseinate solution is used, this being subjected to the digestive action of papain for several hours." The firm states further that this more easily soluble, fermented sodium caseinate is more acceptable to the stomach as it has, so to speak, been predigested by the action of papain and will, therefore, be readily absorbed and assimilated.

2. It was pointed out that while no special claim is made for the direct action on the liver with the control of intestinal toxemia and its consequent implications, headache, constipation, arthritis, etc., the claim is made that it is exceedingly active, quickly combines with protein and is entirely absorbed in the stomach. Inquiry was also made that, if this is the case, how can the preparation deodorize the feces? The firm replied that there is, undoubtedly, a considerable absorption of the colloidal sulphur in the stomach, that, however, some of it by the digestive action of pepsin passes into the intestinal tract and deodorizes the feces, which the firm states has actually been established to be a fact by a number of experiments and may be easily proved by clinical use. The firm stated that the action of colloidal sulphur in alimentary toxemia is doubtless due to its action in adsorbing toxins and its ability to combine readily with protein in the intestinal tract without the formation of hydrogen sulphide.

3. Since colloidal sulphur has been described in the literature and preparations claimed to be or to contain colloidal sulphur have been marketed, the firm was asked to present evidence in favor of the recognition of its proprietary name. The firm replied that the colloidal sulphur which has been described in the literature does not use its process of preparing a finely dispersed sulphur in a protective colloid medium, and called attention to its U. S. patent.

The manner in which colloidal sulphur is supposed to act seems to the Council's referee not by any means clear. There is no evidence that it is absorbed and, supposing it is, the clinical effect of sulphur does not seem to the referee to be supported by the evidence presented for acceptance of this product. The referee has reviewed the articles mentioned in the letter from the company which were available to him. Without giving any extensive summary it may be stated that most of the articles deal with the effect of colloidal sulphur injected subcutaneously or intravenously for the treatment of joint and muscle pains. The cases reported are rather vague and treatment fairly prolonged and from the referee's clinical experience he would expect that almost any form of treatment might have been equally successful. He thinks the comment of one of the authors, Comrie (*Brit. M. J.* **1**:991 [June 30] 1917), is very much to the point. After reporting several cases of what he calls trench rheumatism in which he used colloidal sulphur intramuscularly, he concludes that this drug "is of use in subacute, painful conditions of the muscles and joints." He uses other measures at the same time, rest, massage and heat, and further states that colloidal sulphur does not in any way take the place of salicylates in acute rheumatic fever. The use of sulphur in the so-called intestinal toxemia cases is at best very precarious.

The following is the report of the A. M. A. Chemical Laboratory on the composition of Sulphocol:

A bottle labeled Sulphocol brand of Colloidal Sulphur (American Chemical Laboratories, H. K. Mulford, Philadelphia, Pa.) and a bottle containing 60 Gm. of a solid, together with a rubber sealed bottle labeled Sulphocol Sol Brand of Colloidal Sulphur Sol, containing 25 cc. of a clear but amber colored liquid, were submitted to the A. M. A. Chemical Laboratory

for examination at the request of the Council on Pharmacy and Chemistry. The correspondence intimated that the solution was a sterile, aqueous solution of the solid made isotonic with physiologic solution of sodium chloride. The solid was claimed to contain from 20 to 25 per cent of elemental sulphur.

Four determinations of the total sulphur in the solid by Carius tube methods yielded 14.20 per cent, 14.35 per cent, 14.41 per cent and 14.66 per cent, respectively. These determinations included certain amounts of combined sulphur, as well as the elemental sulphur, and so the free sulphur is something less than 14.4 per cent. A discrepancy of between 25 and 40 per cent of the elemental sulphur claimed is thus indicated.

The Council adopted the reports of the referee and of the A. M. A. Chemical Laboratory and directed that Sulphocol be not accepted because the therapeutic claims are unwarranted, because its composition is not in accord with the claims made, and because the evidence does not show that the product is of sufficient originality to permit the recognition of a proprietary name.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

SUN WHEAT BISCUITS

Manufacturer.—Canada Biscuit Company, Ltd., London, Ontario.

Description.—Essentially a wheat biscuit with unusual vitamin and calcium content.

Manufacture.—Formula of ingredients:

	Pounds
Whole wheat flour	196
Irradiated wheat germ	49
Bone meal	11
Shortening	28
Butter	9
Yeast	9
Sugar	50
Invert sugar	20
Salt	3.5
Baking soda	2.5
Ammonium carbonate	1.25
Cream of tartar	5
Skim milk	40

The biscuits are baked at approximately 300 F. The degree of acidity of the dough is *p*H 6.0-6.2. The comparatively low baking temperature and the particular degree of dough acidity are protective to the vitamins.

Composition.—	Per Cent
Moisture	4.2
Ash	5.5
Fat	13.3
Protein	11.3
Crude fiber	1.2
Carbohydrate (nitrogen-free extract)	64.5
Calcium	1.12
Phosphorus	0.78
Iron	0.005-0.012
Copper	0.001

Vitamins.—A, B_1, B_2, D, E by biologic tests.

Claims of Manufacturer.—As essentially a wheat food these biscuits provide more vitamin values and a higher percentage of calcium minerals than do most cereal products. They consequently have high nutritional values for this class of foods and are therefore especially recommended for babies and children because of these vitamin and other growth essentials. Maintenance of quality standard is exercised by laboratory control.

Five to six biscuits contain calcium equivalent to that of one pint of milk. The iron approximates one half of that of egg yolk.

SUNWHEATS

Manufacturer.—The Sawyer Biscuit Company, Chicago.

Sunwheats is the brand name for Sun Wheat Biscuits manufactured for distribution in the United States.

HORLICK'S MALTED MILK

Manufacturer.—Horlick's Malted Milk Corporation, Racine, Wis.

Description.—A dried milk and extract of malted barley and wheat.

Manufacture.—Milk is admixed with water extract of malted barley and wheat. The water is evaporated off in partial vacuum and at such temperature as to conserve enzymatic activity. The enzymes are permitted to act on the milk proteins.

Composition.—	Per Cent
Moisture	3.1
Minerals (ash)	3.9
Fat	8.9
Protein	16.4
Total carbohydrates	67.9
Dextrin	18.8
Lactose and maltose	49.1

Claims of Manufacturer.—It is a nutritious food and when taken hot before retiring is helpful for inducing sleep. It is valuable in diets for undernourished, nervous patients, those afflicted with wasting diseases, invalids and convalescents.

HORLICK'S SWEET CHOCOLATE FLAVOR MALTED MILK

Manufacturer.—Horlick's Malted Milk Corporation, Racine, Wis.

Description.—Horlick's Malted Milk, flavored with cocoa.

Manufacture.—Horlick's Malted Milk is admixed with sufficient cocoa to give it a pleasant chocolate flavor.

Composition.—Essentially the same as that of Horlick's Malted Milk.

Claims of Manufacturer.—Recommended for similar uses as those for the plain Horlick's Malted Milk, but especially whenever the chocolate flavor adds change and zest.

GRAPE-NUTS

Manufacturer.—General Foods Corp., New York; Postum Company, Inc., Battle Creek, Mich.

Description.—A breakfast cereal of whole wheat and malted barley.

Manufacture.—Ground whole wheat and malted barley and a small quantity of yeast and salt are prepared in bread dough form. The dough is fermented, molded into loaves and baked in much the same manner as is ordinary bread. The baked loaves are machine-broken into small pieces which are again baked for several hours. The product is finally crushed.

No coloring or sugar is added to Grape-Nuts. The color is developed by the baking.

Composition.—	Per Cent
Moisture	2.5
Ash	2.7
Fat	0.6
Protein	10.6
Crude fiber	0.4
Nitrogen-free extract	83.2
Maltose	14.2

Claims of Manufacturer.—Grape-Nuts is an energy food. It provides proteins, the mineral elements of wheat and barley, and vitamin B. The crisp particles demand thorough chewing. It is a good food for growing children.

The Genetic System.—The way diverse individuals develop, the peculiarities that they show, the so-called laws of heredity, the extraordinary resemblances and differences between parents and offspring—all these things depend largely on the arrangement and behavior of the genes.—Jennings, H. S.: The Biological Basis of Human Nature, New York, W. W. Norton & Co., Inc., 1929.

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SATURDAY, AUGUST 23, 1930

CHOLESTEROL AND THE ANEMIAS

In 1758, Poulletier de la Salle extracted what is now known as cholesterol from biliary calculi. Fourcroy verified his data in 1782 and isolated an identical substance from the liver. The presence of cholesterol in the blood was first demonstrated by Boudet in 1833. Since then cholesterol has been studied extensively in an effort to see whether it is related to any disease in man. In a monographic discussion, Muller [1] points out several suggestive relationships. It is well known that cholesterol is maintained at a fairly constant level in the blood stream in health. Low cholesterol diet in man does not markedly affect the blood level. On a high cholesterol diet there may be a transitory rise. Muller declares that there must be an "efficient regulatory mechanism" and that any constant abnormality of the level is to be regarded as a deficiency of this mechanism rather than as an increase or decrease in the total amount of cholesterol. Muller reports that ingested cholesterol is excreted unchanged by the liver, spleen and reticulo-endothelial system. It is pointed out, however, that cholesterol is synthesized in the body—probably from fatty acids—by the liver, spleen and suprarenals. This cholesterol is used in the endogenous metabolism especially in the production of new cells. Destruction of cholesterol has never been demonstrated. There are many reports of hypocholesteremia in hypothyroidism and of hypercholesteremia in myxedema. Variations in the blood cholesterol have been reported in other diseases of internal secretion. Because the evidence is fragmentary and often conflicting, Muller decides that no definite relationship can be established now between cholesterol and diseases of internal secretion. Several workers report a hypercholesteremia in cases of acidosis, and for that reason it is thought that there may be a connection between the regulatory mechanism and the acid-base balance. Muller's survey reveals hypercholesteremia in nephrosis and in the hemorrhagic anemias, which is regarded by certain investigators as a compensatory mechanism on the part of the lipoids to keep up the osmotic pressure due to a loss of proteins from the blood. A low cholesterol blood level is reported in conditions of extensive and active growth of cells in the body.

Muller finds that the reports show the most constant changes in the cholesterol blood level in the so-called hemolytic anemias. Hemolytic jaundice and pernicious anemia both exhibit a low cholesterol value frequently. MacAdam and Shiskin [2] report a rise in cholesterol after splenectomy in hemolytic jaundice. Apparently a close relation exists between the cholesterol level and remissions and relapses in pernicious anemia. Muller contends that "the rise of cholesterol at the onset of the remission is called forth by the active principle effective in pernicious anemia." Muller points out that low cholesterol values may be obtained in animals by increasing the activity of the reticulo-endothelial system. This would explain the low cholesterol in hemolytic anemia, since the reticulo-endothelial system is thought to be responsible for an increased destruction of the red cells. Muller suggests that the rise in cholesterol in a remission in pernicious anemia may be due to a suppression in the activity of the reticulo-endothelial system.

At the present time, knowledge of cholesterol is incomplete. A standard method for cholesterol determinations must be devised and a set of normal values established instead of the numerous methods now in use having various "normal" values. When this is done it will be possible to determine how efficient the "regulatory mechanism" is in health. Clinical medicine needs a simple method of determining the blood volume at the same time that determinations of blood constituents are made. Until such a method is devised, these values frequently may be misleading. Muller's survey shows that cholesterol determination now is infrequent. Seldom have more than one or two determinations been made in a given case, and little effort has been made to correlate the results with blood counts or other data. Chamberlain [3] has shown that, in rabbits, the spleen increases to two or three times its normal size by the intravenous injection of cholesterol. Because of the report of MacAdam and Shiskin and his own work, Chamberlain suggests [4] that the spleen is hyperactive in hemolytic jaundice and is therefore responsible for the hypocholesteremia. Muller's contention that the whole reticulo-endothelial system is involved seems more likely. Muller concludes that "future work on this obscure problem may lie in a correlation of the cholesterol of the blood to the functional state of the reticulo-endothelial system in various diseases, the relation of the cholesterol to growth of cells and to the concentration of the serum proteins, as well as the influence of the physicochemical condition of the medium and the colloidal state of the cholesterol itself."

1. Muller, Gulli Lindh: Cholesterol Metabolism in Health and in Anemia, Medicine **9**: 119, 1930.

2. MacAdam, W., and Shiskin, C.: Quart. J. Med. **16**: 193, 1922.
3. Chamberlain, E. N.: J. Physiol. **66**: 249, 1929.
4. Chamberlain, E. N.: Brit. M. J. **2**: 896, 1929.

TEST TUBE VACCINES

The antigenic specificities of test tube micro-organisms are currently assumed to be identical with those of the same micro-organisms when acting as infectious agents; in other words, it is thought that vaccines prepared from test tube cultures are logical immunizing agents against homologous infections, and test tube antiserums equally logical as specific therapy. Both assumptions are challenged by Veblen [1] of Stanford University, who has reason to believe that infectious micro-organisms may undergo biochemical adaptations to the animal body that may so alter or "mask" their test tube specificities as to render test tube vaccines and antiserums a pure gamble.

Veblen's evidence in support of this hypothesis is drawn from her experience with *Bacillus typhosus*, *Streptococcus viridans* and other micro-organisms grown for several generations in dilute horse serum (Ringer's solution). She found that by the eighth to the twelfth generation in subculture certain of these micro-organisms had acquired a relatively high precipitin agglutinability, the bacteria now being agglutinated with anti-horse rabbit precipitin in dilutions as high as 1:1,000. These altered micro-organisms were completely inagglutinable with specific bacterial agglutinins. These altered agglutinabilities were completely lost in first-generation subcultures in nutrient broth.

It has long been known that micro-organisms freshly isolated from the animal body are often resistant to homologous antiserums.[2] It has also been known that inert particles suspended in specific protein solutions may acquire a slight precipitin agglutinability, presumably because of the formation of superficial environmental protein films.[3] Veblen's observed increase in this mechanically acquired precipitin agglutinability, however, probably indicates a more radical biochemical change than a mere "masking" of internal specificities by superficial adsorption films. Landsteiner's [4] and Avery's [5] recent demonstrations that new specificities may be conferred on proteins by simple conjugation with a single amino-acid, lipoid or polysaccharide might explain this postulated alteration without the necessity of radical alterations in protein structure.

From the numerous failures of test tube vaccines, it would be easy to argue that such radical changes in bacterial specificity do take place in the animal body. Suggestive evidence in support of this contention is furnished by Laidlaw and Dunkin's [6] recent experiments with a certain form of canine distemper. This distemper is readily transferred to ferrets. The splenic pulp of an infected dog contains the unknown infectious agent and in sublethal doses is a successful specific vaccine for dogs. Infected ferret splenic pulp is an equally successful vaccine for ferrets. But neither of these vaccines is successful with the opposite animal species. The canine "hybridized" virus and the ferret "hybridized" virus are conceivably of such different specificities as to function as two immunologically distinct vaccines. Other explanations of this observed failure are, of course, possible. Veblen's challenge to conventional bacteriology stimulates new hope in a thus far discouraging therapeutic field.

1. Veblen, Becky B.: Are there Bacterial-Protein "Hybrids?" Proc. Soc. Exper. Biol. & Med. **27:** 204 (Dec.) 1929.
2. Mellon, R.: The Biologic Origin of Inagglutinability of Freshly Isolated Typhoid Cultures, Arch. Path. **2:** 444 (Sept.) 1926.
3. Jones, F. S.: Agglutination by Precipitin, J. Exper. Med. **46:** 303 (Aug.) 1927.
4. Landsteiner, A. W., and van der Sheer, J.: Serological Differentiation of Sterio Isomers, J. Exper. Med. **48:** 315 (Sept.) 1928.
5. Avery, O. T.: Presidential Address before the American Association of Immunologists, New York, April 17, 1930.
6. Laidlaw, P. P., and Dunkin, G. W.: J. Comp. Path. & Therap. **41:** 1 (March 31) 1928.

THE MINIMAL REQUIREMENTS OF CALCIUM AND PHOSPHORUS IN CHILDHOOD

Both calcium and phosphorus are indispensable to the welfare of the living organism. They are particularly important for the development and maintenance of the skeletal structures of which they form a considerable part. As a recent writer has remarked, the rigidity of the bony framework of the body is in such contrast to the softness of the other tissues and is so clearly related to the presence of calcium and phosphorus in the bone that every one is impressed. None the less significant, however, though not so readily apparent, is the part played by these elements in the regulation of functional processes, notably in muscles, nerves and the blood. There are abundant reasons, then, why so much attention has been directed of late to the dietary supply of calcium and phosphorus—a problem which sporadic enthusiasms for the energy needs, the protein requirement or the vitamin quota have all too often thrust into the background.

The determination of the optimal intake of any food ingredient is fraught with obvious difficulties. First of all there is the uncertainty of what constitutes an optimal state of nutrition or an optimal rate of growth —the desiderata of feeding practices. Then there is the almost inevitable circumstance that requirements may be varied by environmental changes or altered functional demands. Again, the unlike availability of the same elements from different food sources introduces the complications of alimentation. It is usually easier, therefore, to attempt to determine the minimal requirement of indispensable food factors than to designate what an optimal intake should be.

The dearth of information regarding the minimal requirement of calcium and phosphorus for growing children has been relieved by the recent investigations of Wang, Kern and Kaucher [1] at the Michael Reese Hospital in Chicago. In their investigations of the metabolism of undernourished children, the difficulties

1. Wang, C. C.; Kern, Ruth; and Kaucher, Mildred: Minimum Requirement of Calcium and Phosphorus in Children, Am. J. Dis. Child. **39:** 708 (April) 1930.

of making some of these persons eat adequately led to negative balances for some of the elements; that is, the output through various channels exceeded the intake. On the basis of these observations, the minimal and not the optimal calcium and phosphorus requirements for a child about 8 years of age, weighing 20 Kg. and living on a mixed diet, would be 0.45 Gm. of calcium and 0.67 Gm. of phosphorus daily in order to give a positive balance.

These figures are far below what is contained in the currently recommended quart of milk a day for a child. Sherman and his co-workers have concluded that for children of all ages from 3 to 13 years, inclusive, an average intake of not less than 1 Gm. of calcium a day (about twice as much as the maintenance requirement of an average man) is needed to support an optimal rate of storage in the normally growing child. But their experiments also show that better storage resulted when the calcium was furnished mainly in the form of milk than when half of the milk was replaced by vegetables of equal calcium content, even though the vegetables were selected and prepared with the greatest care to make them as suitable and as acceptable to the children as possible. Hence it seems better to Sherman to state the optimal intake not as such a weight of calcium merely but as a diet containing a full quart of milk a day together with other foods suitable to the age of the child. Such a dietary will almost always contain 1 Gm. or more of calcium and a proportionately liberal amount of phosphorus, as well as an excellent protein and vitamin content.[2] The observations at Chicago of the minimal—not the optimal—requirement help to give cogency to the factor of safety implied in the conventional recommendations.

RAPIER DUELING AND SURGERY

The Berlin correspondent recently[3] referred to the opposition of the executive committee of the leading organization of surgeons in Germany—the Deutsche Gesellschaft für Chirurgie—to the proposal to prohibit rapier dueling among the German university students. The defense of the duel with the familiar straight two-edged sword responsible for so many mutilations of the faces of Europeans is based on the assertion that rapier dueling—the *schlägermensur*—is a contest or form of sport rather than a duel within the usual interpretation of the term. The committee of distinguished surgeons remarks gravely that "the rapier is not to be regarded as a deadly weapon if"—so the statement whimsically proceeds—"the required bandages and other precautions are employed." In other words, although wounds and injuries are commonly inflicted to the extent of requiring surgical intervention, the chance of having an eye gouged out or a jugular vein severed need not depress the combatant too seriously. It is not denied that injuries are common and that fatalities occur. These are minimized by the astounding argument (?) that boxing tends to produce a larger harvest of deaths. Perhaps boxers also ought to be more adequately protected against their antagonists by suitable "bandages" or "armament" rather than abandon a form of gentlemanly combat which has a larger number of fatalities and more permanent injuries to its credit than the rapier duel can claim.

Another statement reported by our correspondent might be accepted with amusement if it were not so pathetic in its implications. "Deaths following rapier duels," it is said, "have nearly always been indirect results (due chiefly to blood poisoning or late hemorrhages); deaths resulting from boxing are frequently direct results of the contest." The relative advantage of a somewhat delayed death from injury seems a gruesome distinction. It is pointed out further that every masculine sport is attended with dangers; and that, without doubt, mountain climbing, swimming, horseback riding and football are much more dangerous than the rapier duel. It is quite possible that the mortality statistics for the last mentioned demonstration of prowess are less formidable than the loss of life incurred in such sports as swimming. The fatal outcome in these cases, however, is the result of accidents, not injuries inflicted by instruments of unquestionable danger. A saber cut is the result of a wilful thrust by an antagonist; escape from it is due merely to the agility of the opponent.

Dueling has been extolled as a device for developing physical courage; so has war. A decade after the World War there are few who court another war for the purpose of "energizing" the manhood of the nation. In any event, the mutilation of the human body as an incident of sport or the promotion of courage may well be relegated to the civilization of the past. It surely does not deserve the encouragement of a profession that aims to preserve perfect health and physique and to avert bodily harm. The scarred face of the duelist has never won applause in this country.

It should be added in all frankness that our American sports, notably football, are not free from just criticism with respect to the conduct of many contests. A player who suffers an injury—a wrenched knee, an injured shoulder, a cut eyelid, a strained muscle, for example—is all too often sent back to the eleven to continue his play on the chance that no further harm will befall him. Such a performance is frequently countenanced by the team surgeon on the field. The practice of subjecting injured organs and tissues to further strain or impact is reprehensible. It is a high price to pay for victory. Sport, even of the most competitive sort, should be the perquisite of the healthy, sound body, instead of the obligation of the maimed and crippled as it too often appears to be during the American football season. *Mens sana in*

2. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 3, New York, Macmillan Company, 1926, pp. 315-316.
3. Surgeons Oppose Prohibition of Rapier Dueling, Berlin Letter, J. A. M. A. **95**: 216 (July 19) 1930.

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corpore sano seems to lose its appeal to the university audiences in the bleachers. They are prone to applaud the indifferent student dragging an injured body toward the goal of public beatification.

Current Comment

MISSPENT WEALTH FOR HEALTH

The reading of publication number six [1] of the Committee on the Costs of Medical Care is depressing. This investigation into the expenditure of a "typical" rural county in search of health is reminiscent of that direly objective study of small town life called "Middletown." Cold, comfortless facts tell exactly where the peoples' money goes: half a million of dollars, or about $21 a head. Less than one third of this money was spent for medical advice and aid. More than a third was spent on drugs and medicines, but of the latter only about 10 per cent were dispensed by physicians. What proportion was prescribed and what proportion selected by patient or druggist is unfortunately not stated. The county that boasts only thirty-one physicians has five "active" chiropractors and six Christian science practitioners. Half the children in the county have been vaccinated, and less than 5 per cent of the school children under 10 years of age have been immunized against diphtheria. The expenditure in this county on public health is the smallest item in the budget, amounting to 1.3 per cent. All who are intelligent enough to desire medical care can have it: hospitals, general practitioners and consultants are, it is found, accessible to all, rich and poor alike. Apparently the weakest point in the health situation in Shelby County is what might be called the health intelligence quotient.

THYROXIN AND THYREOGLOBULIN

Although thyroxin is commonly referred to as the iodine-containing hormone of the thyroid gland, there is no evidence of the existence of the substance in a free state either in the glandular structures or elsewhere in the body. The specific crystallizable compound thyroxin is a product of the disintegration of thyroid protein, notably the so-called thyreoglobulin. This protein is demonstrable as such in simple extracts from the thyroid gland and is present in the lymph and blood from the thyroid gland.[2] The inference is plain that thyroglobulin is secreted by the thyroid. The question has therefore repeatedly been raised as to whether various "thyroid effects" can be produced by means of thyroxin with the same efficiency and of the same character as they are brought about by administration of the gland substance itself or even of thyreoglobulin. In other words, does the "artificial" fragment thyroxin produce physiologic effects that are both quantitatively and qualitatively comparable to those brought about by intact thyroid products of the same iodine content? Several investigators have reached the conclusion that there are at least quantitative differences. In a review of these claims Kendall,[3] to whom we owe the isolation of thyroxin, has stated that if thyroxin is administered in proper doses for a sufficient length of time it will bring about every effect that follows an injection of iodothyreoglobulin.[3] It is therefore necessary to assume that after thyroxin has been injected into the animal organism it becomes incorporated and activated in the functioning protoplasm and when in this condition is the full equivalent not only of iodothyreoglobulin but of the fresh juice of the thyroid gland so far as all symptoms of hypothyroidism and hyperthyroidism are concerned. Schulhof [4] has suggested that thyroxin or a compound similar to it, forming part of the large molecule of thyroglobulin, might be better adsorbed than a small molecule by the protein particles coming into contact with it. Furthermore, the high sulphur content of thyroglobulin might have a physiologic significance comparable with that of iodine, which is also electronegative. In studies at the John McCormick Institute for Infectious Diseases in Chicago, Schulhof was unable to detect any noteworthy differences between the action of thyreoglobulin and thyroxin in doses of equivalent iodine content. At present, therefore, there is no occasion to assume that thyroxin fails to produce in full measure the phenomena associated with thyroid administration.

TYROSINOSIS—A METABOLIC ANOMALY

Actual inborn errors of metabolism have long been known in clinical medicine. They are not of common occurrence but their characteristics render them of decided scientific interest. The most conspicuous instances are represented by idiopathic pentosuria, cystinuria and alkaptonuria. All these conditions appear to be hereditary. A discussion of the newly discovered aspects of cystinuria was recently presented in these columns.[5] The fact that amino-acids other than cystine have been found in the urine of cystinuric persons has suggested the existence of a more generalized metabolic disturbance than one involving cystine-yielding complexes alone. In alcaptonuria the patients excrete homogentisic acid derived from a deranged catabolism of tyrosine and phenylalanine. Medes [6] of the University of Minnesota Medical School has studied a patient whose urine reduced phosphotungstic acid at room temperature in acid solution. It yielded tyrosine, dihydroxyphenylalanine, hydroxyphenylpyruvic acid and hydroxyphenylacetic acid, all of which were definitely identified. For this condition Medes proposes the name tyrosinosis rather than tyrosinuria. The latter, she avers, would indicate simply loss of tyrosine as in cystinuria, whereas in this case there are excreted, in addition, metabolites representing at least two lines of metabolic processes. The actual metabolic significance of these observations remains to be elucidated. With a method of preliminary detection described, perhaps more instances of such metabolic perversions or incomplete catabolisms will presently be brought to light.

1. Peebles, A.: A Survey of the Medical Facilities of Shelby County, Indiana, 1929, Committee on the Costs of Medical Care, June, 1930.
2. Hektoen, Ludvig; Carlson, A. J., and Schulhof, Kamil: Am. J. Physiol. **81**: 661 (Aug.) 1927.
3. Kendall, E. C.: Thyroxine, New York, Chemical Catalog Company, 1929.
4. Schulhof, Kamil: Thyroglobulin Versus Thyroxin, Am. J. Physiol. **93**: 170 (May) 1930.
5. The Nature of Cystinuria, editorial, J. A. M. A. **94**: 1505 (May 10) 1930.
6. Medes, Grace: A Hitherto Undescribed Inborn (?) Error of Metabolism Related to Tyrosine, J. Biol. Chem. **87**: xi (June) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, and at 9:45 on Thursday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

August 25. Fatigue and What It Does.
August 26. Buggs' High Powered Vacation.
August 28. It Pays to Keep Shined Up.
August 30. On Cancer Cures.

Five Minute Health Talks may be heard over the Columbia Broadcasting System daily from 1 to 1:05 p. m., daylight saving time.

The program for the week is as follows:

August 25. Diet in the Cure of Disease.
August 26. Whooping Cough.
August 27. Expanding Health Horizons.
August 28. Food Poisoning Season.
August 29. Maximized Health.
August 30. First Aid for Snake Bites.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Faculty Changes at University of California.—The following faculty changes have been announced by the regents of the University of California: the resignation of Col. Edward L. Munson, associate clinical professor of tropical medicine; leaves of absence were granted to Drs. Ernest H. Falconer, associate professor of clinical medicine, from August 1 to October 1; Howard Morrow, clinical professor of dermatology, from July 1 to September 1; Walter S. Franklin, clinical professor of ophthalmology for the year 1930-1931; Ernst Wolff, assistant clinical professor of pediatrics, from July 10 to October 10, in order that he may attend the first International Congress of Pediatrics in Stockholm, Sweden. Dr. Lionel S. Schmitt was made director of the University Hospital.

Dr. Lucas Honored.—In appreciation of service to the University of California Medical School by Dr. William Palmer Lucas, retiring head of the department of pediatrics, during the last seventeen years, members of his staff tendered a banquet and presented him a gold watch purchased with contributions from students of each of the seventeen classes. Dr. Lucas graduated from Western Reserve University Medical School in 1905 and was instructor in pediatrics at Harvard University Medical School (1908-1913) before coming to California. In 1916 he made a health survey of Belgium for the Commission for Relief in Belgium at the request of Herbert Hoover and from 1917 to 1919 he was chief of the children's bureau of the American Red Cross in France. Among other decorations received for his services was La Medaille de Vermeil des Epidémies, conferred by the French government. Dr. Lucas will continue at the school as clinical professor of pediatrics on a part-time basis.

Society News.—The San Francisco Polyclinic Clinical Evening was held, August 12, under the auspices of the San Francisco County Medical Society. Papers were presented by Drs. William E. Stevens on "Differential Diagnosis of Pathologic Conditions of the Upper Urinary Tract and the Intra-Abdominal Organs"; Otto G. Freyermuth, "Economic Neuroses"; Ernest K. Stratton, "Accidents and Complications in Syphilis Therapy: Case Reports," and Edward Matzger, "Studies in Human Hypersensitiveness—Recent Advances."——The Santa Monica branch of the Los Angeles County Medical Society was addressed, August 19, by Dr. R. Sands on "Acute Pancreatitis."——The Sunshine School of San Francisco is reported to have under care seventy-two crippled children who are being educated for self help and self support.——Dr. Lorenz Böhler, Vienna, at a special meeting of the Alameda County Medical Society, July 5, discussed the treatment of fractures, illustrated by moving pictures.——The Napa County Medical Society was addressed, June 4, by Dr. Frederick F. Gundrum, Sacramento, on "Irregularities of the Heart"; Thomas R. Haig, "Low Back Injuries," and Junius B. Harris, "Impending Medical Legislation."—— The Santa Barbara County Medical Society was addressed, July 14, by Dr. Howard L. Updegraff, Los Angeles, on "Methods of Reconstructive Surgery," illustrated by moving pictures.—— The Santa Clara County Medical Society has established a county medical library in its society room; more than forty of the leading magazines are regularly received.

COLORADO

Personal.—Dr. Harry G. Corper, Denver, has been awarded the Ward Burdick Research Gold Medal by the American Society of Clinical Pathologists for his work in isolating and culturing the tubercle bacillus.——Drs. Rodney H. Jones and Edward R. Mugrage, instructor and professor in clinical pathology, respectively, University of Colorado School of Medicine, were awarded a gold medal at the annual meeting of the American Society of Clinical Pathologists held at Detroit recently. The award was for the best scientific exhibit present at the meeting. The exhibit concerned the Aschheim-Zondek pregnancy test.

GEORGIA

Society News.—The First District Medical Association was addressed at Savannah, July 29, by Drs. Louis Fielding Lanier, Sylvania, on "Endemic Typhus Fever"; Henry Clifford Sauls, Atlanta, "Treatment of Cardiac Decompensation with Special Reference to the Use of Digitalis"; Charles Usher, "Fracture of the Skull," and Julian K. Quattlebaum, "Hemolytic Jaundice." Dr. Quattlebaum was elected president for the ensuing year.——The Fulton County Medical Society was addressed, August 7, by Dr. James K. Fancher on "The Influence of Sodium Cacodylate on the Leukocyte Count," and Dr. Madison Hines Roberts on "Studies on Congenital Syphilis"; Dr. Benjamin H. Clifton presented a case report on "Total Extirpation of Rectum and Anus for Benign Lesions."

IDAHO

State Medical Election.—At the annual meeting of the Idaho State Medical Association, June 28, Dr. Delos E. Cornwall, St. Maries, was installed as president; Dr. Joseph N. Davis, Kimberly, was made president-elect, and Dr. Harold W. Stone, Boise, was elected secretary. These offices will be effective for one year beginning January 1. The next annual meeting will be held at Boise.

INDIANA

Nineteen Years as Health Officer.—Dr. Herman G. Morgan was recently reappointed city sanitarian and city health board secretary for Indianapolis. This starts Dr. Morgan's nineteenth year in this capacity. Improvements have been made during his administration in public school nursing, prenatal clinics, reduction of infant mortality and contagious disease death and case rates, more stringent pure food regulations, strict sanitation laws, child health division and the drop in the tuberculosis death rate.

Society News.—The Jefferson County Medical Society was addressed at Madison, July 24, by Drs. Edwin N. Kime, Indianapolis, on "Electrothermic Surgery in General Practice," illustrated by lantern slides, and Edwin L. Libbert, Lawrenceburg, "Recent Developments of the Penetrative Properties of Various Physical Agencies."——Dr. Paul A. Garber, South Whitley, addressed the Whitley County Medical Society at Churubusco, July 18, on "Albuminuria of Pregnancy," and Dr. Jesse H. Briggs, Churubusco, spoke on "Puerperal Insanity."——The Grant County Medical Society was addressed, July 30, at Marion by Drs. Zed T. Hawkins, Fairmount, and Godlove G. Eckhart, Marion, on "Symptoms, Diagnosis and Treatment of Appendicitis and Report of Cases Treated in Grant County Hospital During the Past Ten Years."

IOWA

Personal.—Dr. Walter R. Fieseler, formerly a medical supervisor of athletics, University of Iowa, has resigned from the faculty of the college of medicine to become associate medical director at the University of Southern California.

Hospital News.—It has been announced that the St. Joseph's Hospital at Webster City was recently closed with the retirement of the Sisters of Mercy who have operated it

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for the past twenty-five years. The hospital will be reopened as a county hospital while construction work on the first unit of a new county hospital is in progress.

KENTUCKY

Health Menaced by the Drought.—The state director of health has completed a survey of forty-three counties to ascertain the effects of the drought on the public health. The situation is said to be serious. The state is said to face a lack of food which will necessitate the creation of relief agencies in practically all counties within ninety days. Pellagra is more prevalent than for many years. Seven times as many cases of typhoid have occurred as in any of the last three years, it is reported. Six hundred thousand doses of typhoid vaccine have been distributed by the laboratory of the state board of health.

State Medical Meeting at Bowling Green, September 15-18.—The eightieth annual session of the Kentucky State Medical Association will be held at Bowling Green, September 15-18, with headquarters at Western Kentucky State Teachers' College, and under the presidency of Dr. Granville S. Hanes, Louisville. Among the speakers will be Drs. Robert L. Biltz, Fort Thomas, on "Treatment of Rheumatic Fever in Childhood"; Oscar O. Miller, Louisville, "Present-Day Conception of Pulmonary Tuberculosis in Infancy and Childhood"; John Harvey, Lexington, "Pernicious Anemia"; Joseph D. Northcutt, Covington, "Nonmalignant Tumors of the Breast"; William D. Reddish, Lexington, "Serum Reinjection Therapy in Morphine Addiction"; Hervey B. Scott, Louisville, "Malaria Therapy in Paresis"; John T. Bate, Jr., Louisville, "Local and Regional Anesthesia in the Reduction of Fractures"; Louis Wallace Frank and Judson P. Boulware, Louisville, "What Surgery Offers the Consumptive"; G. M. Wells, Glasgow, "The Failing Heart of the Fifth and Sixth Decades: Its Management (Arteriosclerotic Heart Disease)"; William M. Elliott, Lancaster, "Management of the Diabetic in His Home"; Gaylord C. Hall, Louisville, "Diagnosis and Treatment of Diseases and Accidents of the Upper Air Passage by the Bronchoscope"; Samuel C. Smith, Ashland, "Diagnosis and Treatment of Acute Osteomyelitis"; Edwin F. Sheppard, Jenkins, "Diagnosis and Treatment of Acute Pancreatitis"; Edwin Dargan Smith, Owensboro, "Pregnancy in Thyroid Disease," and Lawrence T. Minish, Frankfort, "Pregnancy in Heart Disease." A film on "Treatment of Normal Breech Presentation" will be presented. There will be symposiums on minor procedures requiring major precautions and pitfalls in therapy. Dr. George Dick, Chicago, will give a public address, Wednesday. The orations in medicine and surgery will be given, Tuesday, by Drs. Emmet F. Horine and Owsley Grant, both of Louisville, on "Mechanism of the Heart Beat" and "The Position of Urology in the Progress of Medical Science," respectively.

LOUISIANA

Hospital News.—Ground was broken, July 12, for a new 600 bed $2,000,000 marine hospital in New Orleans. It is said that the idea for the new hospital was conceived by the late Dr. William C. Rucker, while he was serving as head of the institution six years ago. At the ground breaking exercises, Senator Joseph E. Ransdell turned the first spade.

MARYLAND

Personal.—Reginald D. Manwell of the School of Hygiene and Public Health of Johns Hopkins University has been appointed assistant professor of zoology at Syracuse University.

University News.—At a meeting recently held in the surgical pathologic laboratory at Johns Hopkins Hospital, Baltimore, the subject was the differential stain in the tissue diagnosis in the operating room. The meeting was arranged by Dr. Joseph C. Bloodgood. The experimental laboratory at Johns Hopkins Hospital will furnish, on request, a small sample of stain to any one interested.

Reduction in Communicable Diseases.—According to a bulletin of the State of Maryland Department of Health, there were nearly 28,000 fewer cases of sickness from communicable diseases reported to the department during the first six months of 1930 than during the corresponding period of 1929. The excessive total for the first half of 1929 is due, largely, to the influenza epidemic, in which 23,809 cases were reported as compared with a total of 812 cases for the same period in 1930. There were also reductions in pneumonia (2,280 cases) and tuberculosis (1,445). There was no smallpox. For the first time psittacosis appeared on the records with a total of 27 cases. There were 12 cases of endemic typhus fever, 8 of tularemia and 14 of undulant fever.

MICHIGAN

Increase in Accidental Deaths.—The state department of health has reported an increase of 22.5 per cent in the number of traffic fatalities during the first six months of this year as compared with the same period in 1929. The report shows that up to July 1 this year 649 persons lost their lives in accidents with automobiles. In 1929, the toll was 543. There was an increase for the first half of this year in the number of suicides to 422 as compared with 328 in the same period of 1929. Drownings also mounted from 130 up to July 1, 1929, to 166; there were 104 deaths from accidental burns and 41 persons died in conflagrations. There were reported 51 deaths from unknown causes of violence this year compared with only 7 in 1929.

"Cancer Clinic" Closed.—The Michigan State Board of Registration in Medicine reports that it has permanently closed the "Michigan Research Clinic," a quack outfit better known as "The Tilton Cancer Clinic," located in the Fort Wayne Hotel, Detroit. It is reported the investigation at the time of the raid disclosed that the Michigan Research Clinic was being actively run by the chemist, Tilton; that it had no means whatever of diagnosis; that the routine charge was $75 a week for serum and $3 a day for room, and that it guaranteed to cure. The medical adviser, Dr. John J. George, was arrested and brought before the recorder's court, July 28. His fine was held in abeyance and he was cited to appear before the board, August 11, to show cause why his license should not be revoked.

Society News.—The first annual golf tournament of the Wayne County Medical Society will be held at Hawthorne Valley in September. Dr. Robert C. Jamieson is chairman of the golf committee. The editorial board of the society announced that it anticipates running a series of feature articles for the bulletin on the state institutions giving the name, location, the facilities, methods of admission and other data.——The thirty-second annual clinic of the Upper Peninsula Medical Society was held in Marquette, August 7-8. Among others, addresses were given by Drs. Benjamin T. Montgomery, Sault Ste. Marie, on peptic ulcer, and William S. Jones, Menominee, goiter.——Among other speakers before the medical section of the National Fraternal Congress of America, held in Detroit, August 18, were Drs. Royal S. Copeland, New York, on public health; E. Franc Morrill, Rock Island, Ill., "Adventures in Health Service," and Theodore Freedman, Little Rock, Ark., "Later Developments of Syphilis as Pertaining to Life Insurance."——A special committee on commercial censorship has been appointed by the Wayne County Medical Society to investigate the plans of various collecting agencies and adjustment concerns. Physicians are asked to refer all collection solicitors to the society for investigation. This committee will work in cooperation with the Detroit Better Business Bureau, to whom it will furnish a report of its investigation.

MINNESOTA

Personal.—It is reported that Dr. Thomas P. Noble, formerly in orthopedic surgery in the Mayo Foundation, has recently returned to Great Britain after three years of service in the Medical School of Chulalongkorn University at Bangkok, Siam, and has just been appointed by the king of Siam for three years as head of the surgical service of the Siamese government.

Society News.—The Scott-Carver County Medical Society was addressed at Watertown, July 8, by Dr. Charles D. Harrington, Minneapolis, on "X-Ray Diagnosis of Gastro-Intestinal and Gallbladder Lesions," and Dr. Arthur E. Benjamin, Minneapolis, "Lesions of the Gastro-Intestinal Tract and Gallbladder and Their Surgical Treatment."——"Surgery and the Treatment of Tuberculosis" was the subject of a paper presented by Dr. W. T. Peyton, Minneapolis, before a recent meeting of the Park Region County Medical Society.

MISSOURI

Annual Clinical Conference.—The Kansas City Southwest Clinical Society will hold its eighth annual fall clinical conference in Kansas City, October 6-10, with headquarters in the President Hotel. The allied hospitals will conduct clinics each morning, arranged so that each man can select the specialty in which he is interested. The guest speakers will be Drs. John Lovett Morse, Boston; Fred L. Adair, Chicago; Conrad Berens, Jr., New York; William S. Baer, Baltimore; Hugh H. Young, Baltimore; Eugene P. Pendergrass, Philadelphia; Rudolph W. Holmes, Chicago; Leonard G. Rowntree, Rochester, Minn.; Grandison D. Royston, St. Louis, Mo.; Ralph C. Matson, Portland, Ore.; Jennings C. Litzenberg, Minneap-

olis; John F. Barnhill, Indianapolis; Dean Lewis, Baltimore; Allen B. Kanavel, Chicago; Percy W. Toombs, Memphis, Tenn.; Robert C. Coffey, Portland, Ore.; Frederick J. Taussig, St. Louis; Theodore W. Weisenburg, Philadelphia, and Leroy A. Calkins, Kansas City, Kan. The postgraduate course in charge of Dr. John L. Myers, Kansas City, will comprise ninety-one one hour classes to be given in specially equipped rooms by members of the clinical society. The classes will be limited to small groups and admission will be by preenrolment. Other features will be a joint meeting of the Central Association of Obstetricians and Gynecologists, October 9, when a symposium on normal labor will be conducted, after which the members of the association will adjourn to Excelsior Springs for an added two day meeting. At the public meeting, Chancellor Ernest H. Lindley, LL.D., Lawrence, Kan., will talk on the education of the public toward the profession. Entertainment includes alumni banquets and dinners, a smoker, noonday round table discussion, golf, and special entertainment for the ladies. The first annual fall clinical conference was held in 1923 as an intensive five-day clinical meeting with an array of distinguished guests. To this were added monthly clinics. Two years ago the scientific extension service was added and last year was started the postgraduate course consisting of ninety subjects. The president is Dr. Buford G. Hamilton, Kansas City.

NEBRASKA

License Revoked.—The license of Dr. Lilburn Baker Lake, Omaha, to practice as a physician and surgeon in Nebraska was revoked, February 14, by order of the secretary of the department of public welfare for having performed an illegal operation.

Society News.—The Lancaster County Medical Society was recently addressed by Drs. Clarence Emerson, Lincoln, on "Management of Tuberculous Empyema," and Everett E. D. Angle, "Cystoscopy in Children." May 28, the society was addressed by Dr. Charles Singer, head of the department of the history of medicine of London University, who talked on "Transition of Medieval to Modern Science."——The Madison Five County Medical Society was addressed, June 17, at Bloomfield, by Drs. William D. Runyon, Sioux City, Iowa, guest of honor, on the diagnostic problems in gastric symptoms.

NEW JERSEY

Personal.—A tablet in memory of the late Dr. Obadiah H. Sproul, long a practicing physician in Flemington, was presented to the state tuberculosis sanatorium at Glen Gardner, July 22, by the Hunterdon County Medical Society. The tablet commemorates the service performed by Dr. Sproul as a physician, president of the state medical society and member of the board of managers of the state tuberculosis sanatorium.

Society News.—The July meeting of the Cumberland County Medical Society was addressed by Drs. George N. J. Sommer, Trenton, president of the state medical society, on the society's welfare program; Paul N. Jepson, Philadelphia, anterior poliomyelitis, and Henry D. Jump, Philadelphia, "Use of Quinidine in Heart Disease."——The Morris County Medical Society was addressed, June 16, by Dr. Richard Kovacs, New York, on "Physical Therapy in General Practice."——The Union County Medical Society was addressed, July 9, at Scotch Plains, by Dr. Elmer P. Weigel, Plainfield, on "Operative Treatment in Cases of Bone Tuberculosis," illustrated.

Prosecutions by Board of Medical Examiners.—The following illegal practitioners were recently prosecuted by the Board of Medical Examiners of New Jersey for practicing medicine without a license:

Anna Cloud, a spiritual adviser, Trenton, paid the court penalty.
Alice R. Owston, Jersey City; gave colonic irrigations and also prescribed drugs; paid the penalty.
Leonard J. Jones, conducts the Leonard Health Offices at 9 Park Place, Newark; paid the penalty.
Charles De Rosa, Lodi, druggist.
Mabel E. Manahan, Englewood, conducts the Mabel E. Manahan Sanatorium; prescribed diets, drugs, administered drugs and gave electric treatments.
Herbert Coenen, conducts the St. Paul's Home for the Aged at Pompton Lakes; paid the penalty.
Anna Stillwagon, Trenton; manufactures a rheumatic remedy which she prescribes for all conditions.
Michele Micucci, Lambertville; unable to pay the penalty, he was committed to the Hunterdon County jail for ten days.
John L. Corish; connected with the Theronoid Company, Newark; paid the penalty.
Robert W. Rogers, osteopath of Plainfield; paid the penalty.
Frederick W. Budde, unlicensed chiropractor of Newark; paid the penalty.
George Maza, unlicensed chiropractor of Newark.
George D. Herring, osteopath of Plainfield; paid the penalty.
Ernest R. Brown, unlicensed chiropractor of Beverly; paid the penalty.
Anna F. Citarella, unlicensed chiropractor of Glen Ridge.
Caroline Seving, also known as Caroline Nilsson, Atlantic City; unable to pay the penalty, and as it was a second offense, the judge committed her to jail for sixty days.
Della Dayton, "specialized" in giving colonic irrigations; paid the penalty.
Harry Lieb, Seaside Heights, and Arthur Rovner, Toms River, druggists; paid the penalty.

NORTH CAROLINA

Personal.—Dr. Alfred R. Shands, Jr., formerly of Washington, D. C., is reported to have been placed in charge of the orthopedic work in the Duke University School of Medicine and Hospital.——Francis P. Gaines, Ph.D., has resigned as president of Wake Forest College to become president of Washington and Lee University, Lexington, Va.

OHIO

Personal.—The chief of the new state bureau of examination and classification of prisoners will be Dr. Charles H. Creed, who has been first assistant physician at Columbus State Hospital.——Dr. Joseph H. Kinnaman, formerly health commissioner, Topeka, Kan., assumed his duties in Cincinnati, July 10, as the new chief school medical inspector of the health department. He succeeds Dr. Lewis W. Heizer, who resigned to become school physician of Watertown, N. Y.

Losses by Physicians and Dentists.—A survey recently completed by a credit bureau of one of Ohio's large cities shows that physicians and dentists were unable to collect $1,750,000, or an average of 18.2 per cent, of the total credit extended to patients during the year 1929. The loss was confined to bad accounts and did not include charity work. A fact disclosed was that many persons who are good pay for other services and materials are bad risks for physicians and dentists.

Carbon Monoxide Deaths Increase.—Deaths from carbon monoxide caused by gas heating appliances during the year July 1, 1929, to June 30, 1930, inclusive, numbered 52, an increase of 11 over the year before. The number of carbon monoxide poisonings was 127 as compared with 168 for the preceding year. The bedroom is the most dangerous location for heaters. Water heaters in bathrooms and kitchens were the next most dangerous. Space heaters in living rooms caused 5 deaths. There were 20 cases of poisoning from gas ranges and 11 deaths, and 84 cases of poisoning caused by carbon monoxide from automobile exhausts, mostly in closed garages. There were 15 cases with 2 deaths occurring in automobiles while on the road with the fumes permeating the interior of the machines.

OREGON

Society News.—Physicians of Benton County met recently and with the assistance of Clyde C. Foley, Portland, executive secretary of the Oregon State Medical Association, organized the Benton County Medical Society with Drs. William T. Johnson, Corvallis, as president and Henry Garnjobst, Corvallis, as secretary. Physicians of this region have heretofore maintained a membership in the Central Willamette Medical Society.——A special meeting of the Portland City and County Medical Society was addressed, July 16, by Dr. Oliver P. Kimball, Cleveland, on "Relation of Thyroid Disease to Mental Deficiency."

SOUTH CAROLINA

Personal.—A portrait of Dr. Robert S. Cathcart, Charleston, was unveiled in the hall of the Medical Society of South Carolina at Roper Hospital, June 10.

Society News.—The Columbia County Medical Society was addressed, June 30, by Dr. Edward Mellanby, University of Sheffield, England, on phases of chemistry in relation to medicine.——At a recent meeting of the Medical Society of South Carolina, held at Charleston, a case report was presented, among others, by Dr. Daniel L. Maguire, Charleston, on staphylococcic osteomyelitis treatment by the use of maggots; May 13, the society held a symposium on the injection treatment of varicose veins.——The Columbia Medical Society was addressed recently by Drs. Samuel E. Harmon on handling the injured and Thomas A. Pitts, Jr., Columbia, gallbladder diagnosis.

UTAH

Society News.—The Salt Lake County Medical Society was recently addressed by Drs. Edwin M. Neher on "Pemphigus"; David L. Barnard, lead poisoning, and Orin A. Ogilvie, pathologic specimens. A motion picture on gastroenterostomy was shown. The society is a recipient of $600 from the Radium Corporation for use in defraying some of the expenses of the medical library. The society went on record

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as favoring the notification of parents of boy scouts to consult their family physicians regarding vaccination. The association also changed its by-laws so that it may form an associate membership for the purpose of admitting teachers in the medical department of the University of Utah who are devoting their whole time to the instruction of medical students.——Dr. Lorenz Böhler, Vienna, addressed the Weber County Medical Society, June 30, at Ogden on fractures.

WEST VIRGINIA

Society News.—The Mercer County Medical Society was addressed, June 19, at Bluefield by Drs. William E. Dickerson, Princeton, on "Nasal Accessory Sinus Infections," and Huston St. Clair, Bluefield, on "The Normal Band and Line Polynuclear Neutrophil Count: Its Value as a Diagnostic Aid."——The Central West Virginia Medical Society held its third quarterly meeting at Webster Springs, July 16, with the Lewis County Medical Society as guests; talks were given by Drs. Walter E. Vest, Huntington, "The Importance of Attendance at Medical Meetings"; William B. Morrison, Columbus, Ohio, "Recent Advances in the Treatment of Fractures," and Henry A. Baughn, Columbus, Ohio, "Hypertension: Etiology, Diagnosis, Prognosis and Treatment."——The annual joint meeting of the Monongalia and Preston county medical societies held at Hopemont, July 15, was addressed by Dr. Casper H. Benson, Columbus, Ohio, on "Early Diagnosis of Pulmonary Tuberculosis."——The Raleigh County Medical Society was addressed, June 19, by Drs. Kyle M. Jarrell, Beckley, on "Pyelitis in Infants and Children," and George W. Johnson, McAlpin, "Puerperal Infection."

WISCONSIN

Hospital News.—The Mount Sinai Hospital, Milwaukee, was recently rated highest in the percentage of utilization of beds during 1929 among twenty-two Jewish hospitals of the larger type in the United States. The percentage of occupancy or utilization was 89.5 per cent.——July 21, seventy patients were transferred to the new 600-bed county hospital at Wauwatosa.——The new $170,000 veterans' hospital at Chain O'Lakes, Waupaca, has been dedicated.

The Conviction of O. C. Piper.—The court recently affirmed the conviction of Oscar C. Piper on a second offense charge of attempting to practice medicine without a license. A jury had found him guilty on the testimony of an inspector for the state board of medical examiners who went to the defendant's barber shop for treatment for a venereal disease and was sold a bottle of medicine for $5. The defendant claimed that the deceit of the inspector rendered his evidence inadmissible, but his contention was not upheld by the court. The files of the Bureau of Investigation of the American Medical Association show that in 1916 O. C. Piper was found guilty of practicing medicine without a license in Wisconsin. They also show that in 1924 Piper was exploiting a "plaster treatment" for cancer from his barber shop.

Society News.—The Jefferson County Medical Society was addressed at Lake Mills, July 30, by Dr. Hans H. F. Reese, Madison, on "Therapeutics in Neuropsychiatry," and Dr. Damon A. Brown, Madison, "Chronic Infection in the Posterior Urogenital Tract of the Male."——The Wisconsin Clinical Surgical Club met at St. Joseph's Hospital, Marshfield, July 12, as guests of Dr. Karl W. Doege who spoke on "Surgical Treatment of Embolism of the Pulmonary Artery" and "The Diet of 'Gerson' Treatment of Tuberculosis." Other addresses were by Drs. Samuel G. Schwarz, "Fungus Infection of the Skin in Relation to Surgery"; Hansford H. Milbee, "Undulant Fever," and Walter G. Sexton, "The Value of Lateral X-Ray Plates in the Diagnosis of Gallstones and Kidney Stones."——The monthly publication of the Medical Society of Milwaukee County, which has heretofore been called the *Bulletin*, is now called the *Milwaukee Medical Times* and will give special attention to medical economics.

GENERAL

Surgical Congress Organized.—The Southeastern Surgical Congress was organized, January 7, and the first assembly was held at Augusta, Ga., May 15. The congress was organized for the purpose of stimulating progress in medical science in the Southeastern United States and neighboring territories, of cooperating with accredited medical schools and hospitals for higher standards of medical education, of promoting the science of surgery and kindred arts and sciences and the welfare of the profession of surgery, to hold professional and social meetings, and to publish transactions. The officers elected were Drs. Edgar G. Ballenger, Atlanta, Ga., president; Charles W. Roberts, president-elect; Luther C. Fischer, vice president, and Benjamin T. Beasley, Jr., secretary. The next assembly will be held in Atlanta, March 9-10, 1931.

Society News.—The fourth International Congress of the World League for Sexual Reform will be held in Vienna, September 13-20. Subjects to be discussed include the history of sexual morality, the internal secretions, birth control and the economy of the human species and the rights of children. The program is printed in German, English, French and Esperanto. Information concerning the league can be obtained from Büro des IV Kongresses für Sexualreform Wien 1930 in Wien 1/15, Postrach 63, Austria.——It is reported that, during the half century of work of the Brooklyn Society for the Prevention of Cruelty to Children, 250,000 complaints of abuse and cruel treatment involving 850,000 children were received and investigated at a cost of nearly $2,500,000.——The annual meeting of the Central Association of Obstetricians and Gynecologists will be held in Kansas City and Excelsior Springs, Mo., October 9-11. The secretary is Dr. Everett D. Plass, University Hospital, Iowa City, Iowa.——The Border Medical Society, including neighboring parts of North Dakota, Saskatchewan and Manitoba, was organized, July 10. The object of the organization is to advance medical service by the interchange of ideas. Dr. Robert S. Thornton, Deloraine, Manitoba, was elected president; Dr. Alexander R. MacKay, Bottineau, N. D., vice president, and Dr. Noel R. Rawson, Melita, Manitoba, secretary. The society will hold an inauguration luncheon, August 29, at Winnipeg, when it will be addressed by Dr. Alfred Cox, secretary of the British Medical Association.——The date of the meeting of the Western Branch of the American Urological Association has been changed from September 4-5 to September 18-20.

CANAL ZONE

Dr. Byrd Appointed Health Officer of Panama City.—Dr. Jesse L. Byrd, formerly health officer of Colon, has been appointed health officer of Panama City to fill the vacancy caused by the death of the late Dr. Paul Preble.

FOREIGN

University News.—The governing body of Corpus Christi College of the University of Cambridge has awarded to Dr. Reginald Hilton the Copeman medal for research in medical and biologic sciences. The present award is the first which has been made.

Personal.—Dr. John Rennie has been appointed professor of public health at the University of Sheffield in place of the late Prof. Frederick E. Wynne. Dr. Rennie is medical officer of the city of Sheffield.——Sir Charles Sherrington, University of Oxford, and Dr. Joseph A. Arkwright of the Lister Institute of Preventive Medicine were recently appointed members of the Medical Research Council in succession to Sir Frederick Hopkins and Sir Charles Martin who retire in rotation, September 30.

Health Conditions in India.—The state of public health in India in 1927 is summarized in a report just received of the public health commissioner. The birth rate in 1927 was 35.27 per thousand, which was above the ratio of the two previous years, and the death rate was 24.89, representing a fall from 1926. The infantile mortality rate was 167 per thousand births. Over 8,000,000 persons were treated for malaria in 1927. Antimalarial work has been carried on extensively by health officials. Respiratory diseases accounted for the highest death rate of the country, being between 8 and 16 per thousand of population. Tuberculosis varied from 8.4 per thousand for Kashipur in the United Provinces to 1.6 in the city of Bombay. There were 780,000 anticholera inoculations performed in 1927 in Bengal, which had suffered a mortality of 120,000, or an increase of about twice the usual mortality. Plague had the lowest mortality in 1927 for the last thirty years. There has been a steady rise in mortality from smallpox since 1921. In cooperation with the British Empire Leprosy Relief Association, much attention was given by Indian health officials to the education of the population concerning the early detection and treatment of leprosy. There were 2,342 deaths from rabies. Special attention is being directed by the British Social Hygiene Council against the scourge of venereal disease. The total number of patients treated in state and private civilian hospitals and dispensaries came to over 4,600,000.

Government Services

Change of Station in the Navy

The following changes of station in the navy have recently been announced: Comdr. Herbert M. Tolfree has been relieved from all active duty and ordered home, effective September 1; Lieut. Comdr. George B. Dowling from the naval radio station, San Juan, Porto Rico, to the U. S. S. *Bushnell;* Lieut. Gilbert H. Larson to the U. S. S. *Arctic;* Lieut. Roy J. Leutsker to the naval medical school, Washington, D. C.; Lieut. James R. Whiting to the naval ammunition depot, Hawthorne, Nevada; Lieut. Comdr. Frank L. Kelly to the First Brigade, U. S. Marines, Haiti; Lieut. Ray E. A. Pomeroy to the naval hospital, Norfolk, Va.; Lieut. Charles C. Yanquell to duty involving flying at the naval academy; Lieut. Melvin S. Stover to Marine Recruiting Station, Baltimore; Capt. Reynolds Hayden to the marine barracks, Quantico, Va.; Lieut. George W. Dickinson to the U. S. S. *York;* Lieut. John H. Korb to duty involving flying, U. S. S. *Lexington;* Lieut. Arra B. Chesser to the Navy Medical School, Washington, D. C.; Lieut. Leland J. Belding from the La Guardia Nacional de Nicaragua and Nicaragua National Guard to the naval hospital, Great Lakes, Ill.; Lieut. DeCoy Marchand from the second brigade, U. S. Marines, Nicaragua, to the naval hospital, Great Lakes, Ill.; Lieut. Comdr. Dow H. Casto to the navy recruiting station, San Francisco; Lieut. Comdr. Arthur Freeman from the second brigade, U. S. Marines, Nicaragua, to the naval hospital, Norfolk, Va.

New Public Health Officers

The following physicians have successfully passed the examination for entrance into the regular commissioned corps of the U. S. Public Health Service and have been appointed assistant surgeons, effective July 1: John G. Hewitt, Iowa City; Roscoe C. Kash, Saint Helens, Ky.; Chapman H. Binford, Pamplin, Va.; John A. Trautman, St. Paul; Joseph A. Bell, Denver; Calvin B. Spencer, Columbus, Ohio; Edward C. Rinck, Kansas City, Mo.; Arthur F. Steinmetz, Indianapolis; Alvin E. Murphy, Brodhead, Ky.; Gordon A. Abbott, Chicago; Sidney P. Cooper, Portsmouth, Ohio; Edmond J. Mahon, Berkeley, Calif.; George W. Bolin, Galveston, Texas; Elmer T. Ceder, Minneapolis; Dana W. Nance, Nashville; Waldemar C. J. Dreessen, Gladbrook, Iowa; Noka B. Hon, Jr., Parkville, Mo.; Edward J. Reneke, Mobile, Ala.; R. S. Baylor, Philadelphia; Charles W. Folsom, Malven, Ark.; Otis L. Anderson, Omaha, and Claude D. Head, Jr., Memphis.

War Time Rank Given Retired Officers

On June 21, President Hoover signed the act which gives war time rank without increase in pay or allowance to officers and former officers of the U. S. Army on their retirement from active service. It affects a total of 715 officers now on the retired list. In the medical corps, Cols. Jefferson R. Kean, Francis A. Winter and Theodore C. Lyster are thus promoted to the grade of brigadier general, retired.

U. S. Public Health Service

Surg. Ralph E. Porter, directed to assume charge of marine hospital at Pittsburgh, Pa.; Sr. Surg. Joseph R. Ridlon, to duty at Ellis Island; Asst. Surg. Raymond L. Evans, to duty at quarantine station, Rosebank, S. I., N. Y.; Asst. Surg. Robert S. Baylor, Jr., to duty at marine hospital, New York; Asst. Surg. Joseph O. Dean, to duty at Ellis Island; Asst. Surg. Walter P. Griffey, to duty at Angel Island, Calif.; Surg. Marion R. King, to duty at Leavenworth, Kan., in connection with field studies and investigations incident to the establishment of narcotic farms; Surg. H. A. Spencer, to duty at Seattle, in charge of quarantine activities; Surg. Thomas B. H. Anderson, to duty as medical officer in charge, marine hospital, New Orleans; Asst. Surg. George W. Bolin, to duty at New Orleans quarantine station; Asst. Surg. John A. Trautman, to duty at marine hospital, Portland, Maine; Asst. Surg. Charles W. Folsom, to duty at quarantine station, New Orleans; Surg. Carl Michel, to duty in charge of service activities at Miami, Fla.; Surg. John H. Linson, to duty as medical officer in charge of the marine hospital, Detroit; Asst. Surg. Sidney P. Cooper, to duty at marine hospital, Stapleton, N. Y.; Asst. Surg. Vane M. Hoge, to duty at marine hospital, New York; Surg. James R. Hurley directed to assume charge of station at San Diego, Calif.; Asst. Surg. (R.) Cecil G. Stillinger, assigned to duty at Marine Hospital, Mobile, Ala.; Asst. Surg. Ennion G. Williams, assigned to duty at Ellis Island, N. Y.; Asst. Surg. Lee C. Watkins, assigned to duty at Marine Hospital, Boston; Asst. Surg. Raymond L. Evans, assigned to duty at Ellis Island, N. Y.; Asst. Surg. Edgar W. Norris, Jr., assigned to duty at Rosebank, S. I., N. Y.; Asst. Surg. Gilbert L. Dunnahoo, assigned to duty at quarantine station, Rosebank, N. Y.; Surg. Frank M. Faget, assigned to duty at Marine Hospital, Cleveland, Ohio; Asst. Surg. Joseph A. Bell, assigned to duty at Angel Island, Calif.; Asst. Surg. Otis L. Anderson, assigned to duty at Marine Hospital, Boston; Medical Director Louis P. H. Bahrenburg, assigned in charge at Marine Hospital, Cleveland.

Changes in Veterans' Bureau Personnel

The July *U. S. Veterans' Bureau Medical Bulletin* announces the following changes in personnel of the Veterans' Bureau:

HOSPITALS

Dr. Thomas G. Brooks, resigned at Portland, Ore.
Dr. Ernest J. Butzke, transferred to Outwood, Ky.
Dr. Roscoe W. Cahill, appointed at Portland, Ore.
Dr. Booton S. Compton, transferred to Alexandria, La.
Dr. Edwin H. Cooper, transferred to regional office, New Orleans.
Dr. Frank I. Darrow, status changed to fee basis specialist at Fargo, N. D.
Dr. Silas L. Filkins, transferred to Jefferson Barracks, Mo.
Dr. Justin E. Gaines, detailed as associate physician to Fort Lyon.
Dr. Pierre J. Germon, appointed at Boise, Idaho.
Dr. Roger P. Hentz, transferred to Philadelphia.
Dr. Welsey F. Howard, resigned at Tuskegee, Ala.
Dr. Walker D. Judkins, reinstated at Fort Bayard, N. M.
Dr. Edwin H. Linfield, resigned at Gulfport, Miss., part time.
Dr. William B. Lunsford, transferred to American Lake, Wash.
Dr. Clarence W. Mehlhop, transferred to central office.
Dr. Daniel B. Moffett, appointed at diagnostic center, Washington, D. C., part time.
Dr. Shade D. Neely, resigned at Muskogee, Okla., part time.
Dr. Harry R. Reynolds, transferred to Camp Custer, Mich.
Dr. Eugene W. Rockey, resigned at Portland, Ore., part time.
Dr. Paul Rockey, appointed at Portland, Ore., part time.
Dr. Jacob E. Shearer, transferred to Oteen, N. C.
Dr. Malcolm H. Yeaman, transferred to North Little Rock, Ark.

REGIONAL OFFICES

Dr. Calvin E. Buswell, appointed at San Antonio, Texas.
Dr. Wallace B. Cannon, appointed in central office.
Dr. James W. Cass, appointed at Cleveland.
Dr. E. D. Dumas, resigned at San Antonio, Texas.
Dr. John E. Graf, appointed at Indianapolis.
Dr. Charles C. Habliston, resigned at Baltimore.
Dr. Morris H. Litman, appointed to central office.
Dr. Edward C. Matthews, appointed at Albuquerque, N. M.
Dr. Guy T. Meek, resigned at Cleveland, Ohio.
Dr. H. E. Nichols, appointed at Seattle.
Dr. Louis Polon, appointed at New York.
Dr. Gilbert Rhodes, appointed at San Francisco.
Dr. Harold E. Rodgers, resigned at Albuquerque, N. M.
Dr. E. J. Wannamaker, resigned at Charlotte, N. C.

Basic Course for Medical Officers

The medical field service school completed the eleventh basic course for medical officers of the regular army recently. This course began February 1 and was devoted to the instruction of regular army medical department officers in the tactical employment of medical department units, training, military sanitation and administration. The graduation address was delivered by Brig. Gen. Frederick F. Russell, medical reserve, director, International Health Division of the Rockefeller Foundation.

The Government Needs a Biologist

The U. S. Civil Service Commission announces the open competitive examination for biologist. Applications must be on file with the commission at Washington, D. C., not later than September 17. The examination is to fill a vacancy in the U. S. Public Health Service for duty at Boston and vacancies occurring in positions requiring similar qualifications throughout the United States. The entrance salaries range from $3,800 to $4,400 a year. The duties are to carry on, under general supervision, advanced biologic research on animal and human materials, with particular reference to the acceleration or inhibition of cellular growth and similar related researches of a fundamental nature. Competitors will not be required to report for examination at any place but will be rated on their education, training, experience, fitness and on publications or thesis. Full information may be obtained from U. S. Civil Service Commission, Washington, D. C., or from the secretary of the U. S. Civil Service Board of Examiners at the postoffice or customhouse in any city.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 2, 1930.

The Sterilization of Mental Defectives

The Committee for Legalizing Eugenic Sterilization, appointed by the Eugenics Society, has presented an important report. It states that there are 300,000 certifiable mental defectives in England and Wales, the majority of whom are the product of impaired germ cells and are liable to hand on the same defect to future generations. High grade mental defectives and the classes which produce them are incapable of regulating the births of their children, which means that in future the gap between their birth rate and that of the rest of the community is likely to grow bigger. Hence the incidence of mental defect seems to be increasing. The committee admits the weakness of the policy of wholesale sterilization, which lies in the fact that many apparently normal persons may transmit mental defect. But the question is whether by sterilization an amount of defect that might swell to unmanageable proportions can be kept within moderate limits. Most authorities agree that mental defect is inherited. Some hold that it is transmitted along mendelian lines by a single recessive factor or by a number of different factors; others that it is produced by toxins acting on the spermatozoon, ovum or early embryo. The estimates of the proportion of the mentally defective coming from neuropathic stock differ widely. Tredgold estimates an hereditary factor of 80 per cent in cases of severe amentia. Dr. E. O. Lewis, in a report to the Mental Deficiency Committee in 1929, stated that he found low grade deficiency sporadic, occurring about equally in different social strata; but high grade defectives, comprising about 75 per cent of the total of defectives, tended to spring from a subnormal and mentally retarded group, estimated as comprising a tenth of the total population. At present eugenic sterilization is not legal in this country.

The committee is about to draft a bill with clauses: 1. Authorizing the medical deficiency authority or superintendent of an institution to sterilize a mental defective, subject to the consent of the parent or guardian and of the board of control (of lunacy administration), and of the spouse if the defective is married. In the case of defectives deemed capable of giving consent, this consent will be necessary. In those who lack the necessary intelligence to give consent, sterilization can be carried out under the foregoing safeguards. 2. Voluntary sterilization of a person about to be discharged from a mental hospital as recovered, provided the further consent of the board of control is obtained, and of the parent or guardian if the person is under age, or of the spouse if married. 3. Legalizing voluntary sterilization, subject to safeguards, in order to prevent the transmission of serious hereditary defect, physical or mental.

Outbursts of Carbon Dioxide in Mines

The disaster in which 150 men were suffocated in a Silesian mine has just been reported. It appears that the accident was due to an electrically driven pick or blasting shot penetrating into a mass of disintegrated coal charged with carbon dioxide, which then filled all the workings. Prof. J. S. Haldane, F.R.S., our leading authority on such mining dangers, points out in a letter to the *Times* that while such outbursts of carbon dioxide are unknown in Great Britain they were described more than thirty years ago in the coal mines in the Gard district of France and have since occurred in Silesian and other coal fields. In one outburst in the Gard district the gas was liberated by the firing of a shot in sinking a shaft into a new seam. The precaution was taken of firing the shot from the surface when the mine was clear of men. The shot-firer heard a rumbling sound and noticed that the air was blowing up the shaft instead of down. Realizing what had happened, he told the men who were near to run for their lives. All escaped except an engineman, who did not hear and was suffocated. The gas and coal dust shot high into the air and for a time discharged like a volcano. Being heavier than air it came back, spread along the ground like water, and reached a village a kilometer away, where it suffocated fowls and dogs, but the level at this distance was too low to kill human beings. The condition giving rise to these outbursts was revealed in 1917 by Mr. J. I. Graham, deputy director of the Mining Research Laboratory, University of Birmingham. He showed that coal in the presence of even a moderate pressure of gas will absorb a large volume of it. On reduction of the pressure the gas is given off again. If the coal is disintegrated, as is apt to happen in the neighborhood of a fault, the gas comes off rapidly and is blown out violently with the disintegrated coal when the confining support is removed. Enormous outbursts of gas may thus occur from a comparatively small volume of coal, particularly if the adsorbed gas is carbon dioxide, since with a given pressure far more of this gas is adsorbed than, for, instance, is methane. The outbursts are also more dangerous, since a much lower percentage of carbon dioxide asphyxiates. In this country several lives have been lost through sudden outbursts of methane from disintegrated coal, but these are not so dangerous as outbursts of carbon dioxide.

Illicit Drug Traffic

The British government's annual report to the League of Nations on the traffic in opium and other dangerous drugs states that no seizures of importance occurred in Great Britain during 1929 and that there was no evidence of traffic on any scale. But reports of seizures from British dominions (particularly India) British colonies, the United States and Egypt show little, if any diminution in the traffic. In September, 1928, ten bottles of cocaine of German manufacture were seized in the possession of two coolies at a railway station in Burmah. It was found that they had formed part of a consignment exported under license to a Chinese physician in Amoy and others to firms in London for reexport. In each case the permit of the Chinese maritime customs had been obtained. It appeared that Amoy was a center from which drugs are smuggled into India and elsewhere.

Sir E. Sharpey-Schafer's Defense of Vivisection

At the opening of the new animal breeding research department of Edinburgh University, Prof. Sir E. A. Sharpey-Schafer, the physiologist, gave an address in which he made a vigorous defense of vivisection. He said that, just as the principles of genetics were applicable to all animals and to plants, they could be equally applied to man. If we were able to use the knowledge acquired in the breeding of animals for the improvement of the race we might eventually eliminate much that tended to keep the race physically and mentally much lower than was desirable. Every advance in modern knowledge had been due to experiments on animals. The knowledge the physician or surgeon brought to the bedside had in its fundamentals been tested on animals. To be consistent the antivivisectionists should never seek medical or surgical aid but should consult the quack, who ignored medical science. It was not necessary to assure them that those who experimented on animals were not the hopelessly cruel creatures painted by antivivisectionist agitators. They had every regard for the sufferings of animals but they had a greater regard for the sufferings of humanity.

The Postgraduate Medical School

The minister of health, after consultation with the London county council and the senate of the University of London, has appointed a provisional organization committee for the new British Postgraduate Hospital and Medical School. The committee consists largely of the eminent medical teachers of the day. They are to report on the planning and construction of

the school and the form of government appropriate, with especial reference to the position of the London county council as the local authority responsible for the hospital, and to the position of the University of London in relation to the medical school.

Hospital Staffed by Women for Treatment of Cancer

Mr. Baldwin, ex-prime minister, performed the opening ceremony of the Marie Curie Hospital for the radium treatment of cancer in women. The hospital was founded by the cancer research committee of the London association of the Women's medical federation. It is organized and staffed entirely by women physicians. Miss Chadburn, M.D., chairman of the committee of management, said that one in seven of our population died from cancer. They at that hospital were part of the army of workers trying to exterminate the disease. They would undertake research into the cause, prevention and treatment. If cancer were only treated at an early stage there would no longer be the terrible proportion of deaths. They had thirty beds in the hospital but wanted fifty. Radium to the value of $60,000 had been lent to them and was never idle. The French ambassador read a message from Mme. Curie wishing success to the work of the hospital.

An Organization to Combat Silicosis

In the house of commons during the consideration of the workmen's compensation (silicosis) bill a new national organization, which is to be set up to combat the disease, was described. The government will make a grant of $5,000 for the general purpose of the organization, which will also be financed by fees from employers in respect of periodic examinations and from workmen on application for certificates that they are suffering from the disease. The total expenditure is estimated at from $65,000 to $75,000 annually. The bill also applies to asbestosis.

PARIS

(From Our Regular Correspondent)

July 23, 1930.

International Congress on Malaria

The second International Congress on Malaria, held recently in Algiers, was one of many ceremonies organized in connection with the centenary of the conquest of Algeria. It coincided also with the fiftieth anniversary of the discovery by Laveran (Nov. 6, 1880) of the malarial parasite. Thirty-eight nations and several colonies sent official delegates to the congress; thirty universities, French and foreign, were represented, and 123 specialists in malariology were present. The congress was presided over by Professor Marchoux of the Institut Pasteur in Paris, and lasted three days. Algeria has done a great deal to combat malaria, thanks to the French military physicians who accompanied the troops and who, in the beginning, had to make enormous efforts to combat the disease, which at that time was much more dangerous than the bullets of the Arabs. Maillot, an army physician, inaugurated quinine treatment in malaria and Laveran, another army physician, discovered the malarial parasite. The campaign against malaria is waged today with energy throughout the colony. It is estimated that 500,000 persons annually are still affected with the disease. The appropriations for this work, which in 1919 were only 43,000 francs, have risen in 1930 to one million francs. At the congress, the speakers had been grouped in sections: 1. The classification and biologic aspects of malarial parasites; hematozoa in general. 2. Classification and biologic aspects of mosquitoes; anopheles and malaria. 3. Epidemiology; endemic and epidemic malaria; statistics. 4. Pathology. 5. Prophylaxis.

The question of recovery from malaria occupied the attention of the congress. It appears from the discussion that negative observations of plasmodia do not justify the assumption that the patient has recovered from the disease. The assembly showed great interest in the conceptions developed in regard to the mechanism of pernicious types and to immunity in experimental malaria. Detailed discussion was accorded to the rôle of surgical interventions in the evolution of malarial accidents and to the part played by the sympathetic nervous system in the pathogenesis of such accidents. The value of malariofloccculation (the Henry test) was confirmed by several authors. Its usefulness is recognized in all cases in which the search for the parasite in the blood cannot be pursued sufficiently long. The following conclusions were accepted by the assembly: 1. Intravenous administration of quinine salts is contraindicated except in cases of pernicious abscesses. 2. The action of plasmochin on the gametes is unquestionable; plasmochin may be combined with quinine; it should not be substituted for quinine; its use is not devoid of danger. 3. Quinine salts combined with arsenic salts have given encouraging results.

Professor Lutrario recounted the activities of the malaria commission of the League of Nations, a permanent commission which centralizes the research on all the great problems connected with the crusade against malaria, the production of quinine, the question of deltas; which organizes epidemiologic investigations on the ground, and which promotes the training of malariologists. The discussion of prophylactic methods showed that there are several procedures in vogue and that one should have recourse simultaneously to several methods, the choice being determined chiefly by local conditions. Drainage and the prolonged use of quinine remain the cornerstones of malarial prophylaxis. In spite of sharp discussions, no agreement was reached in regard to the preventive use of quinine. It was recommended by some and declared useless by others and also entailing an expense out of proportion to the service that it renders. The best preventives are the drainage of wet areas; the application of petroleum to inert bodies of water; the cultivation of certain algae, and the stocking of ponds with minnows (*Gambusia*).

Professor Walch of the Dutch East Indies delivered an address on the hygienization of water by biologic procedures. Professor Schaffner gave an account of a study tour through British India taken by the members of the malaria commission of the League of Nations. Dr. H. Soulié described *Hematozoon malariae* as seen under the ultramicroscope. At the Faculté de médecine, lectures were delivered by Dr. Benhamou of Algiers and Professor Schaffner (the Netherlands). The congress was divided on the conclusion that the crusade against malaria should be essentially international. A few days later, at Constantine, a celebration was held in commemoration of the fiftieth anniversary of Laveran's discovery. Mr. Mesnil, a member of the institute, who was formerly a collaborator of Laveran, and Médecin Inspecteur Général Dopter, director of the army medical corps in the ministry of war, delivered addresses before Laveran's monument.

Report of Commission on the Noise Evil

The Academy of Medicine appointed, a few months ago, a special commission to inquire into the noise evil, which is coming to be recognized in many large cities of the world. Professor Portier, who was charged with the report, examined the question from the physiologic point of view. He brought out in his report that noise acts as a constant parasitic auditory sensation, entailing a heavy and useless expenditure of nervous energy. Noises at night diminish the recuperative value of sleep, even though sleep is not interrupted; for the brain continues to receive at night auditory impressions even though it does not analyze them. In all large modern cities the effects of this general and constant shock to the nervous system are manifest in the development of nervousness and impulsiveness in the population. It is evident that the progress of civilization, by developing machinery, has greatly increased the sources of noise: the noise of factories, the noise of railways, and the

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rattling of heavy trucks. Those are inevitable. But a large part of the noise might be eliminated by modifying the signals, which are all of a disturbing type: whistles of railway engines; sirens of steamboats; horns and bells of private automobiles, street cars and autobusses. The question is a delicate one; for these signals are indispensable, and it is certain that loud signals secure best the attention of inattentive or distracted foot passengers. Many accidents caused by automobiles along rural roads occur owing to the deafness of peasants who do not hear these loud signals. They therefore cannot be done away with in the country. In the cities, the regulations require discretion in the use of signals, and in Paris all loud signals are forbidden after 10 o'clock in the evening. At street crossings, the automobilists replace the blowing of their horns by a flashing of their lights. The whistles of factories might, however, be suppressed; for, in the morning, they awaken nearly every one within hearing, whereas the signal has significance chiefly for their own workmen. Likewise, on the canals the whistles of boats might be eliminated; for they are heard for several kilometers, to notify the lock-keeper and to announce their impending arrival. All that would be needed would be telephonic communication between the stations. Each lock-keeper could notify the next keeper of the departure of a boat. Mr. Portier suggested also that street fairs be suppressed, as they produce, from time to time, a deafening uproar extending far into the night, in certain outlying districts of Paris. He recommended also that zones of quiet be established in the vicinity of hospitals and schools. The academy adopted the conclusions of Professor Portier's report and passed resolutions that were sent to the public authorities. Such resolutions have only the force of suggestions, for the powers of the academy do not extend further.

Medical Certificates for Drivers of Automobiles

The question of medical certificates for automobile drivers has been brought up again by the academy, in view of the increase of grave automobile accidents. The academy suggested, seven years ago, that all candidates for a driver's license should be required to take a medical examination, the chief stress being placed on their sight, hearing, heart and nervous reactions. The academy proposed also that holders of licenses be reexamined every five years. The suggestion was logical, but as the number of persons to be examined amounted to 500,000, the practical difficulties to be surmounted awakened some apprehension, so that nothing has been done. The academy has, however, reopened the question, thanks to an intervention by Professor Hayem. Professor Claude again pointed out the practical impossibility of carrying out the idea, eminently desirable though it may be. Professor Gosset concurred in that view. They suggested that the medical examination might be deferred until after a person has met with the first accident, and that the conclusions of the examination should determine within what time the license should be renewed (if renewable). On this basis, it would be necessary to make a selection from among drivers having faulty driving records. Unfortunately, however, sometimes the first accident produces a fatality. The academy decided to appoint a second commission to study the question.

A Dispensary for the University City

The University City of Paris, which already quarters 1,328 French and foreign students, will shelter 2,120 (275 of whom will be Americans) when the buildings under construction are completed. It has appeared inadmissible to the moving spirit in this magnificent enterprise, Mr. André Honnorat, formerly minister of public instruction, and to the Conseil de direction de la fondation, that this body of young people should not have within the limits of the Cité the same medical care that is placed at the disposal of the pupils of the lycées, the colleges and other higher institutions of learning. There will be established, therefore, a central dispensary, with consultation centers in general medicine, surgery and the specialties; a radiologic service; two laboratories; a permanent emergency service, consisting of intern assistants, and men and women nurses. As a rule, no patient will be hospitalized in the Cité, only consultations, and first-aid and ambulatory treatment being provided. Patients requiring hospitalization will be sent to the Hôpitaux de Paris. The project will require 4,000,000 francs ($160,000) for the buildings and equipment, and nearly 300,000 francs ($12,000) annually for the operative costs. Madame Charles Louis Dreyfus has already presented the Fondation Universitaire (29, rue Le Pelletier) with a gift of 3,000,000 francs. A public subscription has been opened among persons who understand the need of such a creation, in order to secure the remainder of the sum needed for the carrying out of the project.

ITALY

(From Our Regular Correspondent)

June 30, 1930.

Congress of Medical Radiology

The ninth National Congress of Medical Radiology was held in Turin under the chairmanship of Prof. Mario Bertolotti of the University of Turin. The opening session was attended by the princes of Piedmont, who launched also the exhibition of radiologic equipment, associated with the congress.

RADIOGRAPHIC ANATOMY OF THE CRANIUM

The official paper on the first topic, "Radiographic Anatomy of the Cranium," was presented by Prof. Umberto Nuvoli of Rome. The method followed by the Scuola di Roma for the radiologic research on the cranium consists of five typical projections, which are to be made in every case and which afford a complete survey of the whole cranium. All the foramina and cranial fissures are brought out with the exception of the stylomastoid foramen and the posterior condyloid foramen. The author called attention to the importance of the diploic circulation as an indicator of the endocranial changes. Taking up the subject of the relations between the sella turcica and the third ventricle, Professor Nuvoli demonstrated by means of opaque injections on cadavers that in many cases these do not correspond to the teachings of topographic anatomy, and on the basis of his observations he explained certain abnormal behavior of the sella turcica in connection with high blood pressure. The speaker holds, on the basis of researches on craniums, that the internal acoustic meatus and canal are not visible in the submentobregmatic exposure, notwithstanding the belief of many Italian and foreign authors to the contrary.

TUMORS OF THE BASE OF THE CRANIUM

The official paper on the subject "Tumors of the Base of the Cranium" was presented by Prof. Arrigo Montanari of Ancona as a clinicoradiologic study. The speaker remarked that the progress in this field is all due to neurologists, which has necessitated the recognition of a new type of specialist—the neuroradiologist, as recommended by Cushing and by Béclère and realized in Italy by Professor Bertolotti. After surveying the general radiologic semeiology of endocranial tumors, he took up the treatment of basal tumors, considering them from the standpoint of the three cerebral fossae. The changes of the anterior fossa are due chiefly to meningiomas, and consist of erosions, thickening and vascularization, which are manifested in the bone contiguous to the tumor. According to the classification of Sosman and Putnam, the meningiomas may be divided into neuroforaminal and temporofrontal, parasagittal, transverse and sigmoid. Montanari described endosellar tumors in the middle cerebral fossa, together with their clinical and radiologic characters, touching on acromegaly, the various types of hypophyseal giantism and hypophyseal nanism, the much discussed etiology of the adiposogenital syndrome and hypo-

physeal dysostosis. He dealt also with juxtasellar tumors, which he divided into suprasellar (hypophyseal duct), parasellar (cavernous sinus), subsellar (sphenoidal sinus), presellar (olfactory ducts) and retrosellar (ponticerebellar angle, with invasion of the middle fossa). In the posterior cerebral fossa, the speaker described the tumors of the cerebellopontile angle and explained the signs of Schuller and of Henschen and the various nervous syndromes due to the associated changes in the cranial nerves. The paper was illustrated by a large number of roentgenograms pertaining to clinical cases reported from the radiologic institutes of Rome and Turin.

Following the presentation of the paper, the problems presented were discussed at considerable length. Balli recalled the classification of sellar morphology, which he suggested in collaboration with Busi, according to which the following classes were distinguished: (1) sella in the shape of three quarters of an oval; (2) sella in the form of a half circle; (3) sella in the form of three quarters of a circle, and (4) sella rudely quadrangular. The last mentioned type, included by them among the physiologic forms, may be regarded as constituting the limits between the normal and the pathologic. Lupo dissented from the statement of the speaker in regard to the visibility of the internal acoustic meatus in the axial position. Palmieri emphasized the importance of the technic established by Busi for the orientation on the cranium. He expressed the view that it would be necessary to create a roentgen symptomatology of cranial tumors.

ROENTGENOTHERAPY IN HEMOPATHIES

The official communication on "Roentgenotherapy in Hemopathies" was presented by Prof. Giuseppe Bignami of Pavia. The speaker set forth the general conceptions on the biologic action of roentgen rays, in the experimental field and in normal conditions, on the blood and on the hematopoietic organs. He discussed leukemia, polycythemia, aplastic myelosis and progressive pernicious anemia. He developed the subject of treatment of malignant granuloma. According to Bignami, it is necessary to distinguish between stromatic and parenchymal forms, the latter requiring prudent treatment with small and moderate doses, while the former, for example, malignant granuloma, must be treated with rather heavy doses. In the parenchymal processes a distinction is made between the forms in which the white elements are damaged, which are peculiarly sensitive to roentgen rays, and those in which the red elements are injured. The treatment cannot be uniform from the beginning to the end of the evolution of the morbid type, but must follow *pari passu* the various clinical and histopathologic phases of the process. The results vary in the acute and in the chronic types. While roentgen rays are of little value in the former they may give notable results in the latter, improving the general subjective and objective condition and also prolonging somewhat the life of the patients.

PROBLEMS ARISING IN CONNECTION WITH ROENTGENOTHERAPY IN DISEASES OF THE BLOOD

Prof. Luigi Siciliano of the University of Florence, in an address on problems arising from roentgenotherapy in diseases of the blood, said that the changes produced in the blood stream through the action of roentgen rays are manifold and difficult of interpretation, since different factors contribute to their genesis. The immature white and red elements of the blood are highly roentgenosensitive—the lipoids more than the myeloids, the white cells more than the red cells. From recent research it appears that the mature elements of the circulating blood present a high degree of resistance to roentgen rays. The abnormal elements found in the blood of a sick person have certainly less resistance than the sound elements. Many experiments show that, in addition to the effects produced directly by roentgen rays on the irradiated bone marrow, there are also remote changes in areas protected from the action of the rays themselves. This remote action may consist in inhibitions on the normal evolution of the elements or in an acceleration of the process of maturation; that may be encountered also in the treatment of malignant lymphogranuloma. It is on this action that is based the roentgen treatment of certain hemopathies. The effects of this treatment are not enduring and the disease resumes later its course, tending to become resistant to the repeated applications of roentgen rays.

Professor Siciliano's communication was followed by a discussion in which Micheli of Turin brought out that in leukemia the indirect is greater than the direct action (destruction of white corpuscles through the action of roentgen rays). As regards the frequency of irradiation in leukemia, he believed that irradiation should be restricted as much as possible and should alternate with other forms of treatment.

Maragliano of Genoa held that, in the action of roentgen rays on diseases of the blood, account should be taken of a direct action on the skin. Capocaccia, contrary to this opinion, held that it was not correct to consider hemocytoblasts as exceedingly sensitive to roentgen rays. In some of his research he had found that they are very resistant to roentgen rays.

Many communications were presented bearing on the officially chosen topics. Balli and Pigorini of Pavia demonstrated a radiographic method for the determination of the cranial capacity. With this method, the invention of Balli, the authors made a series of comparative researches, from which they conclude that this procedure is subject to fewer causes of error than other similar methods. Gianturco described six personal cases of internal frontal hyperostosis observed by him at the pathologic institute of the Virchow Krankenhaus in Berlin. He discussed the etiology and the pathogenesis of this rare form of cranial hyperostosis, and the relations that exist between this type, termed essential, and the types that are observed during the course of Paget's disease and in osteomalacia and in rickets. D'Istria of Naples reported a case of cranial struma which in four years had destroyed almost completely the occipital bone and the posterior portion of the two parietal bones.

Conserving the Secret of Illegitimacy

For the purpose of preventing abortions and infanticides, new legislative provisions have been enacted to protect the secret of illegitimate maternity in case of abandonment of the new-born. Infants must be consigned directly to the *istituti di assistenza*, but the institutes themselves must avoid betraying by any indiscretion the illegitimacy of a child in case a mother refuses to recognize it. The mother must not be held to the nursing of the child if there are grave objections of a moral nature. If, however, the mother desires to nurse her child, permission may be given to do so in her home, to avoid publicity. Professor Blanc, the president of the Opera nazionale pro maternità e infanzia, recently called the attention of the provincial federations of that society to the necessity of observing these provisions.

Death of Professor Sclavo

The death of Prof. Achille Sclavo, director of the Istituto d'Igiene at the University of Siena, at the age of 69 years, has been announced. After graduation at Turin, he served for several years as an assistant in various university institutes and in the Ospedale Cottolengo, then entered the Direzione generale di sanità, as head of the bacteriologic services. During this period, he made his principal discovery—antianthrax serum. Following his appointment as professor of hygiene at the University of Sassari, he devoted himself to the study of malaria, in order to combat that disease in Sardinia. He was appointed to a chair in Siena, which he held until his death, except for a short period spent at the University of Florence. He was

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for years rector of the University of Siena and established there the Istituto sieroterapico e vaccinogeno toscano. He was the author of many publications and books on hygiene, adapted especially for the schools. In 1912 Professor Sclavo was called by the government in Puglia to organize the campaign against cholera. He succeeded in suppressing the epidemic and as a reward received a gold medal from the Salute pubblica. During the war, he organized and directed at the Scuola di sanità militare, in Florence, numerous courses for the training of nurses and disinfectors for the army, creating thus a hygienic body of more than 2,500 soldiers, which was an effective instrument in combating epidemics in the zone of operations. He founded also the Federazione nazionale antitubercolare and served as president of the Associazione italiana di igiene.

Regulations for the Practice of Obstetrics by Midwives

In a recent ministerial decree, detailed instructions concerning the practice of obstetrics by midwives were issued.

During pregnancy, especially if the prospective mother is a primigravida, the midwife must seek to induce the patient to accept a medical examination and the advice of a physician. A threatened abortion or abortion in progress always requires the intervention of a physician, who alone should decide on the needed treatment and carry it out. In addition to all the operations that require the use of surgical instruments, midwives are forbidden to execute reduction of the uterus, version of the fetus, artificial aid, dilation of the cervix or tamponing of the uterus. After the child is born, the midwife is obliged to remain with the mother at least two hours in normal cases, watching particularly the retraction of the body of the uterus. At the first signs of puerperal sepsis, the physician must always be called.

Hospital Care and the Female Personnel

The general management of the Sanità pubblica has called the attention of the prefects to the interpretation to be given to the regulations at present in force in regard to the activities of nurses. It has been recognized that, as a rule, women are better adapted than men to care for the sick. But women should be properly prepared, not only from the professional but also from the educational or cultural point of view. With that objective as the motive, provision has been made for the creation, in the larger hospitals, of boarding schools for nurses. These schools will issue certificates and diplomas that will be regarded as preferential recommendations for the assumption of service and managerial positions by nurses in the ospedali comunali and in the istituti di pubblica beneficienza. Within a period of ten years, at the most, all the hospitals will be compelled to give the position of ward head nurse solely to nurses with diplomas.

RIO DE JANEIRO

(From Our Regular Correspondent)

July 15, 1930.

Pyelography

In a recent article on pyelography, Drs. José Silveira and Adriano Pondé of the University of Medicine of Bahia, Brazil, said that Roseno established the bases of the method of pyelography made after intravenous injections of contrast fluids, while Lichtenberg and Swick established the method of pyelography by means of the intravenous injection of iodopyridine. This substance has excellent properties as a contrast medium and it is well tolerated. Since the visualization of the calices, of the pelvis of the kidneys, and of the ureters is obtained after the intravenous injection, the peroral administration, and even perhaps after rectal administration of a mixture of urea and sodium iodide, Roseno's method should be called, as Dr. Prado Valladares suggested, the method of descendent pyelography. The technic of the administration of the contrast medium in Roseno's method is simple and has no danger for the patient. Descendent pyelography is of value because it gives reliable anatomic information and shows the real condition of the functional capacity of the kidneys. Roseno's method, either by itself or associated with some other methods of radiologic examination, opens new fields in renal roentgenology.

Kruse-Sonne's Paradysenteric Bacillus

Drs. A. de Assis and Nelson O. Mendes of the Instituto Vital of Brazil made a study of several specimens of the so-called Kruse-Sonne's paradysenteric bacilli and of some bacterial species that have been considered closely similar to Kruse-Sonne's bacillus. The identity of the two types of Mita's bacilli (A and B) of *Bacillus coli-anaerogenes* (so-called Nabarro's *Bacillus coli-dysenteroides*) and of Castellani's type A of *Lankoides ceyloncnsis* with Kruse-Sonne's paradysenteric bacillus was well established. Castellani's *Bacillus dysenteroides-metadysentericus*, though much like Kruse-Sonne's bacillus, is nevertheless clearly different. All these bacteria are sorbite-positive. A sample of *Bacillus coli* Lembke *anaerogenes*, of the type described by Cerruti, was completely different from Kruse-Sonne's bacillus. Kruse-Sonne's antiserum as prepared in the horse is inactive on certain samples of the same species of bacilli (*Bacillus coli-anaerogenes* and bacilli of types A and B of Mita).

Enlarged Spleen of Appendicular Origin

Dr. Cesar Pirajá of Franca (estate of São Paulo, Brazil), reported the case of a boy, aged 14, who was operated on for chronic appendicitis. Before the operation was performed it was noted that the patient's spleen was painful and enlarged, extending farther than the anterior axillary line. Since the operation was going to be performed the following day, further observations and the administration of treatment for the enlarged spleen were postponed till after the operation. After the appendectomy was performed, the complete disappearance of the enlargement of the spleen was surprising. The spleen after the operation scarcely reached the medium axillary line and it was not felt at palpation in the left hypochondrium. The author states that the enlargement of the spleen in his case was of an appendicular origin. He considers as the most plausible hypothesis that the spleen reacted to the chronic toxic infection of the vermiformis appendix. No references to similar cases were found in the literature.

Recovery After Cephalic Tetanus

Dr. J. Moreira da Fonseca presented before the National Academy of Medicine of Rio de Janeiro the report of a case of cephalic tetanus of Rose's type. The patient had a small trauma on the left eyebrow, caused by a fall on a stump. The patient cleaned the wound and treated it with tincture of iodine. The wound healed, but after nearly two months the patient developed trismus and dysphagia, and in a few days a clearly manifested cephalic tetanus developed. The patient presented also bilateral peripheral facial paralysis, deviation of the tongue to the left side, and paralysis of the external rectus and the levator of the upper lid. Feeding became almost impossible and, as a result of this deficient alimentation, acidosis and somnolence appeared. Sometimes there were paroxysms of muscular contractures in the face and the pharynx. The patient had fever only once, after the injection of a dextrose solution. There was no stiffness of the neck nor manifestations of muscular contractures of the trunk, arms or legs. The tetanus in this case had entirely a cephalic localization. The treatment consisted in hypodermic injections of large quantities of antitetanic serum and clysters of large doses of chloral and of calcium chloride. One month later the patient recovered. The author points out the benign nature of the tetanus in this case, its late appearance after an infective trauma of the eyebrow, its cephalic localization, and the value of serotherapy as well as the beneficial effects of the calcium chloride to avoid the development of serum reactions. The tetanus in this case had

a bulboprotuberancial localization, and it was of the type which Rose in 1870 called cephalic tetanus. Dr. Genserico Jayme of the clinic of Prof. Abreu Fialho presented a thorough study on this topic in his thesis for his final examination in 1925.

BERLIN

(From Our Regular Correspondent)

July 28, 1930.

Hereditary Science and Man

Prof. Eugen Fischer, the director of the Emperor William Institute for Anthropology in Dahlem, delivered two important public lectures in recent weeks. Before the "Medical Society for Sexual Science and Constitutional Research," he spoke on "Constitution and Hereditary Transmission." Fischer endeavored in his lecture, which was listened to with careful attention, to differentiate the new and hence somewhat wavering medical conception of constitution from the conception developed by students of hereditary transmission. It will not do to conceive of a pathologic constitution as conditioned merely by hereditary factors. Many influences during prenatal and postnatal life act on the life germ and on the developing or fully developed individual, the results of which, with respect to predisposition to disease, the physician must designate as constitutional. Constitution is a convenient medical conception designed for practical use. If this view is accepted, there arises the possibility of influencing the constitution by medical intervention. To be sure, it has not been found possible as yet to modify that which was laid down in the life germ through hereditary influences. Thus far only one means of influencing the life germ is known, and that is extremely harmful; namely, by roentgen or radium gamma rays. Fischer took up this subject in his second lecture, which was delivered before a wider audience gathered under the auspices of the Berliner Gesellschaft für Eugenik. Fischer referred to the evening as an anniversary, as exactly thirty years had passed since the rediscovery by Professor Correns, who was present at the session, of Mendel's "laws" of hereditary transmission. During this interval, the validity of the laws in their application to man has been proved, for man is not essentially different from animals in matters of heredity. Not until the last years of the school of Erwin Baur in Müncheberg did it prove possible to create new hereditary aptitudes or qualities by artificial means—by the application of roentgen rays to plants and insects. The experiments of Muller, an American, have thrown a clear light on the hereditary processes of malformations and similar injuries of the life germ. From the standpoint of research on heredity, the temporary castration of woman is a dangerous matter; for, since all impregnable ova in the female organism are present from birth, the ova that are not fully destroyed by the rays must at least be touched and acted on, so that they, in all probability, would incur the danger of becoming impaired as to their hereditary qualities, as has always proved to be the case in animals thus treated. In the higher animals, such impaired hereditary qualities can, to be sure, make their appearance only after the lapse of generations and on condition that two carriers of such damaged life germs unite, as parents, for the propagation of offspring. No experimental knowledge exists yet as to whether or not such damage in higher animals actually becomes manifest. Such experiments are at present not feasible in view of the great expense involved. It has been estimated that an experiment on pigs, which has been at least considered, would require three years and would entail an expenditure of 40,000 marks ($10,000).

Organization of the Cancer Crusade

Before the budget committee of the reichstag, Dr. Wirth, the federal minister of the interior, expressed his views, in connection with the discussion on the care of public health, concerning the measures being applied to combat cancer. According to the statistics of all countries, the number of deaths from cancer is increasing. In Germany, the mortality rate is 11 per 10,000 of population. Even though it is often assumed that the increase is only apparent, being influenced by the improvements in diagnosis and also by the fact that more persons than formerly reach the age in which cancer most commonly develops, the figures deserve, nevertheless, most serious consideration. Thus far, the Zentralkomitee zur Erforschung und Bekämpfung der Krebskrankheit has occupied itself chiefly with research. During recent years, however, the treatment of cancerous tumors, especially through the use of roentgen and radium rays, has made such great progress that the disease can now be combated with a prospect of success. France, Sweden and England have been blazers of the trail. In order to ascertain the nature of the work done in foreign countries, the federal ministry of the interior sent a number of cancer experts to Paris and Stockholm, and their reports form the basis for further progress. The federal ministry of the interior has created a Reichsausschuss zur Krebsbekämpfung, while purely scientific research will continue to be furthered by the zentralkomitee, already mentioned. The reichsausschuss has begun its activities and has created a merger of all the organizations in Baden, Bavaria, Württemberg, Hanover, Schleswig-Holstein and Cologne that take an active interest in the cancer crusade. The most important tasks to be performed are: more thorough and more rapid scrutiny of the disease, together with early treatment; creation of centers to ferret out patients and render aid; establishment of a number of centrally located therapeutic centers such as are needed for special cases, and, wherever the need of a larger establishment is recognized, a rational distribution of radium supplies, and arrangements to combat injuries that may arise through the handling of radium. The impression has arisen that the whole organization is being built up solely on the basis of radium application; but such is not the case. While it is true that radium, in the present status of scientific research, stands in the forefront of general interest, the development of cancer therapy has not stopped with radium applications; on the contrary, further progress in methods of treatment may be expected in other fields; for example, in the domain of chemotherapy.

Cancer in Relation to Military Service

The constant increase of cancerous disorders induced the federal minister of labor to investigate, in connection with the aid service, the effects of external influences on cancer disease. According to the outcome of his investigations, if today, more than eleven years since the war, a connection between a cancer now diagnosed for the first time and the war is to appear plausible, special conditions must obtain. If the petitioner ascribes the cancer solely to the general injuries of the war, the causal and temporal association, in view of the generally accepted observations of physicians, must be denied. A causal connection of a cancer with the war cannot be recognized unless the existence of a special, serious injury can be shown and unless from the incriminated injury there are unequivocal footprints leading directly to the demonstrated cancer.

Crusade Against Drinking Customs in the Schools

The Prussian minister of public instruction has forwarded to the school authorities of the provinces a communication that the Reichsarbeitsgemeinschaft für alkoholfreie Jugenderziehung directed to him. The communication was headed "Zur Kenntnis und weiteren Veranlassung" (for your information and further action). The request was made that the minister might use his influence with the provincial school authorities to induce them to request the teachers in higher institutions of learning to suggest to pupils about to graduate to dispense with alcoholic beverages at their leave-taking banquets. Teachers should refuse to participate in students' banquets, or *kommerse*, unless

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this request is complied with. As a result of the recent rulings of the minister of public instruction, a more or less united front is being presented in Prussia against the bad custom of leave-taking drinking parties at the institutions of higher learning.

Revision of the Vaccination Law

During the debate on the budget of the federal ministry of the interior for the year 1929, a resolution was adopted by the reichstag in which the federal government was requested to expedite the issuance of the promised memorial on the scrutiny of the scientific bases of the vaccination law. In response, Dr. Wirth, the minister of the federal department of the interior, made recently the following statement before the budget committee of the reichstag: The memorial requested has been completed, but, in order to give a clear conception of the present status of the whole matter, it needs a few addenda, which, in view of the scientific observations and the outcome of important professional investigations and discussions of recent months, are indispensable. In the foreground of interest are the deductions to be drawn from the appearance of encephalitis, which, more particularly in the Netherlands and England, but also sporadically in Germany, has been observed in recent years in association with inoculations against smallpox. When the first cases of "postvaccinal encephalitis" were observed in the Netherlands, the federal ministry of the interior on two occasions sent experts to the Netherlands to collect detailed information on the occurrences there in order that correct inferences might be drawn. On the basis of the number of cases of "postvaccinal encephalitis" occurring in Germany (1927, 16; 1928, 22; 1929, 22), the danger for the person vaccinated, in view of the 2,500,000 vaccinations performed yearly, is slight. In spite of this fact, the provisions of the vaccination law have been again carefully scrutinized by the federal health council, with the occurrences of recent months in view, and certain modifications in the way of easement have been recommended, as already set forth (THE JOURNAL, May 17, p. 1616).

Occupational Cancer

The federal minister of labor commissioned Prof. Otto Teutschlaender, of the Institute for Experimental Cancer Research in Heidelberg, to collect data on occupational cancer; especially in workmen engaged in the manufacture of briquettes from coal dust. Teutschlaender publishes in the *Reichsarbeitsblatt* suggestions for the prevention of occupational cancers. As it is difficult to combat the external and internal causes, the hygienic measures take the direction of restricting contact with cancer-producing substances, such as tar, pitch, raw paraffin, lubricating oils, aniline and roentgen rays; also immoral practices and bad habits, such as the eating of raw fish in the Haff region, and too hot and too highly seasoned foods and beverages. The influence of social regulations is reflected distinctly in occupational cancers. Since legislation was introduced in England providing that apprenticeships of chimney-sweeps may not begin before the candidate is 21 years old, the age in cancer disease of chimney-sweeps has been advanced from 13 to 14 years.

New Director of the Institute for Tropical Diseases

Obermedizinalrat Prof. Dr. Bernhard Nocht, director of the Institut für Schiffs- und Tropenkrankheiten, will retire from active service, September 30, and be relieved of lecturing in his capacity of ordinarius for tropical medicine at the University of Hamburg. The senate of the university has appointed Geheimer Medizinalrat Dr. Friedrich Fülleborn, counselor in science at the Institut für Schiffs- und Tropenkrankheiten and special extraordinarius at the University of Hamburg, to serve as director of the institute and, at the same time, as ordinarius in tropical medicine at the faculty of medicine of the University of Hamburg.

Marriages

ADDISON MCGUIRE DUVAL, Rhoadesville, Va., to Miss May Elizabeth Weymouth, in Newport News, June 25.

FRANK BROWNE EASLEY, Dalton, Ga., to Miss Dorris Browne Sanders of Chattanooga, Tenn., June 20.

JOSEPH PATRICK BRENNAN, Pendleton, Ore., to Miss Willie Creagh Inge of Mobile, Ala., June 18.

FELIX BURWELL WELTON, Richmond, Va., to Miss Lelia Frances Gardner of Decatur, Ga., July 17.

ACHILLES LACY TYNES, Staunton, Va., to Miss Bessie Meade Riddle of Norfolk, June 21.

WALTER REECE BERRYHILL, Charlotte, N. C., to Miss Norma Connell, August 2.

JOSEPH H. WOOLF, Piedmont, Ala., to Miss Maye Chew of Macon, Ga., July 21.

JAMES ALVIS SOYARS, Saltville, Va., to Miss Billie Barnes of Abingdon, in June.

WILFORD D. NUSBAUM, Dugger, Ind., to Miss Nellie Slazas of Hillsboro, June 26.

GEORGE M. BORIN, Bartonville, Ill., to Miss Jessie McGhee of Peoria, August 5.

Deaths

Edmund Towle Brown ✠ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1897; professor of diseases of the eye, ear, nose and throat at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology, the New England Otological and Laryngological Society and the American College of Surgeons; ophthalmologist, aurist and laryngologist to the Mary Fletcher Hospital, attending surgeon, eye, ear, nose and throat, De Goesbriand Hospital and on the staff of the Fanny Allen Hospital; oculist and aurist to the Elizabeth Lund Home and Home for Destitute Children; aged 58; died, June 4, of coronary thrombosis and arteriosclerosis.

Walter M. Brickner ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1896; member of the American College of Surgeons; served during the World War; on the staffs of the Morrisania Hospital, Broad Street Hospital and the Hospital for Joint Diseases; formerly on the staff of the Mount Sinai Hospital; author of "Surgical Assistant," and "Surgical Suggestions"; editor of the *American Journal of Surgery*, 1905-1927; aged 54; died, July 22, of heart disease.

Louis MacKall ✠ Washington, D. C.; Medical Department of Columbian College, Washington, 1890; member of the Medical Society of Virginia; past president of the Medical Society of District of Columbia; on the staffs of the Garfield and George Washington University hospitals; aged 63; died, July 27, of myocarditis.

Earl Lane Brewer, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1922; member of the Medical Society of the State of Pennsylvania; aged 35; on the staffs of the Germantown Hospital, Kensington Hospital, Woman's Hospital and the Lankenau Hospital, where he died, June 10.

John King Scudder, Cincinnati; Eclectic Medical Institute, Cincinnati, 1888; formerly director of clinics, laboratories and secretary of the faculty of his alma mater; member and past president of the state medical board; editor of the *Eclectic Medical Journal;* aged 68; died, July 29, of heart disease.

Joseph Creath Armstrong, Jackson, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the Mississippi State Medical Association; served during the World War; on the staff of the Mississippi Baptist Hospital; aged 57; died, July 3, of nephritis.

Edward Walter Thuerer ✠ Billings, Mont.; University of Illinois College of Medicine, Chicago, 1907; member of the American College of Surgeons; on the staff of the Billings Deaconess Hospital and St. Vincent's Hospital; aged 50; died, July 11.

Ellis Walton Hedges ✠ Plainfield, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1883; member of the American College of Surgeons; on the staff of the Muhlenberg Hospital; aged 70; died, July 21, of heart disease.

Samuel L. Ansbacher, New York; Columbia University College of Physicians and Surgeons, New York, 1896; assistant director of the bureau of child hygiene of the department of health; aged 56; died suddenly, July 14, of heart disease.

John Albert Clark, Bellaire, Ohio; Columbus Medical College, 1881; member of the Ohio State Medical Association; formerly on the staff of the City Hospital of Bellaire; aged 73; died, July 18, of chronic myocarditis.

David Carter Harrison, Mason, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1908; served during the World War; aged 53; died, July 22, in St. Joseph's Hospital, Ashland, of angina pectoris.

George Whitefield Bond, Keeseville, N. Y.; Homeopathic Hospital College, Cleveland, 1883; member of the Medical Society of the State of New York; aged 72; died, June 21, in a hospital at Plattsburg.

Jesse Wilbert Hale ✠ Yoakum, Texas; Washington University School of Medicine, St. Louis, 1905; on the staff of the Huth Memorial Hospital; aged 56; died, April 18, of myocarditis and nephritis.

George Stevens Hazard, Hollis, N. H.; College of Physicians and Surgeons, Baltimore, 1890; member of the New Hampshire Medical Society; aged 63; died suddenly, April 13, of heart disease.

William W. Herr, Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; aged 66; died, June 10.

John J. Jones ✠ Wilmington, Del.; College of Physicians and Surgeons, Baltimore, 1879; physician in charge of a hospital bearing his name; aged 75; died, July 24, of septicemia.

Jeremiah William Ellis, Chicago; Rush Medical College, Chicago, 1897; served during the World War; aged 64; died, June 30, in the Passavant Hospital, of bronchopneumonia.

Patrick William McLaughlin, Mittineague, Mass.; Dartmouth Medical School, Hanover, N. H., 1900; for ten years member of the school board; aged 57; died, July 3.

George Pope MacNichol, Wenham, Mass.; Harvard University Medical School, Boston, 1893; aged 60; died, July 30, of carcinoma of the cecum and cerebral hemorrhage.

Joseph M. Fox, Torresdale, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1877; aged 74; died, June 27, in the Pennsylvania Hospital, Philadelphia.

Timothy Daniel Gordon, Dora, Mo. (licensed, Missouri, 1884); member of the Missouri State Medical Association; aged 69; died, May 12, of chronic nephritis.

Frederick James Sheahan, St. Catherines, Ont., Canada; University of Toronto Faculty of Medicine, 1904; aged 52; was found dead, June 23, of heart disease.

Francis Austin Burrows, Dumont, Iowa; State University of Iowa College of Medicine, Iowa City, 1887; also a druggist; aged 73; died, July 20, of heart disease.

Walter D. Stannard, Alameda, Calif.; University of Michigan Medical School, Ann Arbor, 1865; aged 90; died, June 28, of bronchopneumonia.

Albert J. Buxton, Anderson, Ind.; Starling Medical College, Columbus, 1897; aged 68; died, July 27, as the result of a cerebral hemorrhage.

Ernest George Cyr, Debden, Sask., Canada; Laval University Faculty of Medicine, Quebec, 1895; aged 59; died, April 29, of heart disease.

Samuel S. Nesbitt, Payson, Ill.; University of Buffalo (N. Y.) School of Medicine, 1867; aged 91; died, May 19, of chronic myocarditis.

Daniel W. McQueen, Camden, Ohio; Medical College of Ohio, Cincinnati, 1895; aged 65; died, June 16, of progressive muscular atrophy.

S. Gurney Kreider, Plainfield, Ind.; Ohio Medical University, Columbus, 1896; aged 62; died, July 18, of sarcoma of the lung.

Arthur Henry Freericks, Cincinnati; Miami Medical College, Cincinnati, 1896; aged 63; died, July 20, of cerebral hemorrhage.

Arthur Swain Hickox ✠ Oakland, Calif.; California Medical College, 1906; aged 67; died, June 3, of acute myocarditis.

Ambrose H. Stubbs ✠ Peach Bottom, Pa.; Baltimore Medical College, 1896; aged 55; died, May 11, of nephritis.

Melville Erwin O'Neil, San Francisco; Medical Department of Drake University, 1895; aged 62; died, May 29.

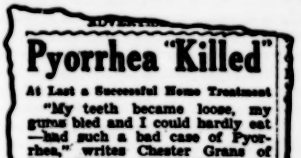
Bureau of Investigation

THE RECTOR COMPANY DECLARED A FRAUD

A Quack Cure for Pyorrhea Debarred from the Mails

The Rector Company, A. J. Major, president, and the J-L Manufacturing Company, all of Kansas City, Mo., were called on by the postal authorities last April to show cause why a fraud order should not be issued against them. On June 6, A. J. Major and W. H. L. Watts, both of Kansas City, Mo., appeared in Washington and a hearing that consumed two days was held and the respondents were granted fifteen days' time to submit a brief, which in due time was received.

The Solicitor for the Post Office Department, Judge Horace J. Donnelly, went over all the evidence in the case and in his memorandum to the Postmaster-General briefly restated the facts and at the end of his statement recommended that a fraud order be issued against the Rector Company, A. J. Major, president, and the J-L Manufacturing Company.


ADVERTISEMENT

Pyorrhea "Killed"

At Last a Successful Home Treatment

"My teeth became loose, my gums bled and I could hardly eat—had such a bad case of Pyorrhea," writes Chester Grans of Louisville, Ky. "Used 10 different kinds of treatment, with no relief until Pyro-Kil completely rid me of this distressing disease. Friends getting same results."

So confident are the distributors that Pyro-Kil will prove a perfect success in the most severe cases of Pyorrhea, Trench Mouth, Sore Bleeding and Receding Gums, and Loose Teeth, they will send a regular $2.00 bottle together with a 50c tube of Pyorrhea Tooth Paste for only one dollar, on 10-DAYS' TRIAL.

Send no money—Just your name and address to The Rector Co., Dept. 2344, 2640 Victor St., Kansas City, Mo., and this new home treatment will be sent by return c. o. d. mail. Unless it does the work, your dollar will be cheerfully refunded. So write today.

According to the Solicitor's memorandum, the Rector Company's business consists in selling through the mails a preparation claimed to cure pyorrhea. The "treatment" included a liquid and a dentrifrice, the latter to be used simply as an accessory. The liquid was called "Pyro-Kil" and had formerly been called "Pyro-Nox." It was said to be composed of compound solution of cresol, U. S. P., a saponified cresol solution, glycerine and water, flavored with oils of cloves and wintergreen. The concern was spending about $5,000 a year in advertising.

One of the chief advertisements used by the concern over a period of years contained what purported to be a testimonial from one Chester Grans of Louisville, Ky. The testimonial read in part as follows:

"Used ten different kinds of treatment with no relief until Pyro-Kil completely rid me of this distressing disease."

In some of the earlier advertisements Mr. Grans' testimonial referred to Pyro-Nox, an earlier name apparently used by the Rector outfit. The government report shows that the original testimonial of Chester Grans was dated Louisville, Ky., March 8, 1928, and addressed to the J-L Manufacturing Company of Kansas City, and referred to neither Pyro-Nox nor Pyro-Kil, but to "Moore's Pyro-Rid." The Rector concern was not started until September, 1928, according to the report, and the formula of the preparation, also according to the same source, was changed at or about the time that the Rector business was started in September, 1928. Obviously, therefore, the Grans

testimonial was actually given for another preparation. In some of the Rector advertising it was stated:

"Pyro-Kil formula is based on a scientific certainty. Its basic ingredients are pronounced by the United States Bureau of Standards to be three to four times more powerful and positive as a destroyer of disease germs than pure phenol, when tested by the Hygienic Laboratory Phenol Coefficient method formulated by the Government for determining germicidal efficiency against pathogenic organisms. Pyro-Kil has a phenol coefficient of 11%."

The facts were that the Bureau of Standards had never tested or reported on Pyro-Kil or Pyro-Nox, nor had it attempted to determine the germicidal power of the ingredients claimed to be in the formula.

The Solicitor's memorandum states that the Rector concern produced a dentist from Kansas City, Mo., to testify for them; unfortunately, the memorandum does not give the name of the dentist. This man, who appeared as a witness, admitted that he was using Pyro-Kil in his practice and also admitted that he did not know the ingredients of the stuff until he appeared at the hearing! The Rector people also presented several affidavits by Kansas City dentists in support of their claims; here again, however, the Solicitor's memorandum gives no names.

It was also brought out that A. J. Major had associated with him, as part owner of the business, one John Abraham, who was the person that furnished the Pyro-Kil formula and brought it into the business. Some years ago Abraham was treasurer, it is reported, of a concern called Moore's Medicine Laboratories, which sold a liquid preparation and a tooth paste under such names as "Moore's Pyorrhea Remedy" and "Moore's Pyorrhea Treatment." This was sold to the trade by the Moore's Medicine Laboratories, Inc., while a subsidiary concern, the Moreham Company, operating from the same address in Kansas City, handled the mail-order end of the business. The present business seems to have been conducted in about the same way: the product, Pyro-Kil, being manufactured and sold to the trade by the J-L Manufacturing Company, while the mail-order part of the business was carried on under the trade name of the Rector Company, both operating from the same address. In August, 1925, the postal authorities issued a fraud order against the Moore's Medicine Laboratories, Inc., and also against the Moreham Company.

In summing up his findings, Judge Donnelly stated that the evidence showed that the gross receipts of the business under discussion for the last year were approximately $10,000. This is of interest in connection with the other fact, that they were spending one-half of this amount on advertising. This brings up, again, the point so often stressed in these pages, that the allegedly respectable newspaper and magazine publishers, who make it possible for frauds like this to flourish, make more money out of these frauds than do the owners themselves.

Of course, there were no physicians, chemists or pharmacists in the Rector Company or the J-L Manufacturing Company. Abraham was formerly in the real estate business, while Major was in the advertising game.

The thing was declared a fraud and on July 14, 1930, the Postmaster-General notified the local postmasters to stamp all mail that came addressed to the Rector Company, A. J. Major, President, the J-L Manufacturing Company, fraudulent, and return it wherever possible to the senders.

THE VREELANDS QUACKERY AGAIN

Dr. Cannon Explains His Testimonial

In this department of THE JOURNAL of July 19 there was published under the title "The Vreelands Quackery" a story regarding a fraudulent grow-hair-quick concern run by one Clayt Vreeland of Cleveland, Ohio. The article in the main dealt with the postal authorities' report leading up to the issuance of a fraud order. Attention was also called, however, to the fact that among the batch of testimonials used by Vreeland in the exploitation of his fraud, he featured one from a physician. This testimonial was credited to Dr. C. J. Cannon, who was described as "Chief Surgeon of the Nottingham Hospital, Cleveland, Ohio." The testimonial also bore what purported to be, and evidently is, a reproduction of Dr. Cannon's signature. The testimonial itself read as follows:

"If the scalp is not atrophied and bound down to the skull, the hair follicles too far gone for HAIRERBS to affect them, we may expect excellent results from this treatment as it is readily absorbed by the hair ducts. Dr. C. J. Cannon."

In our article we stated that one could hardly blame Vreeland for playing up Dr. Cannon's testimonial and featuring it as he did. THE JOURNAL is now in receipt of the following letter from Dr. Cannon:

"*Gentlemen:*—In your article on page 219 of your JOURNAL of July 19th I feel that you have done me an injustice. Kindly find inclosed a sworn copy (the original I have in my possession) which will prove to you that it was used without my consent. Will you kindly publish this in your next issue of THE JOURNAL?

"Very truly yours, DR. J. C. CANNON."

Accompanying Dr. Cannon's note was a sworn copy of a statement by Clayt Vreeland, reading as follows:

"This is to certify that I used Dr. C. J. Cannon M.D. testimonial in regard to Hairerbs without his consent."

It will be noted that Dr. Cannon does not deny that he wrote the testimonial. It is also fair to infer from his letter that he implies that he did not know Vreeland was using his testimonial. We have, however, in our files a letter that was written to Dr. Cannon in 1928 by a layman. It reads as follows:

"Dear Dr. Cannon: I read the data that I received from Vreelands and saw your letter there. Would you please send me the reasons why you think this is good in the enclosed letter? I am very much interested in it. Sincerely yours, ——— ———."

Written right under this letter that was sent by the layman to Dr. Cannon, and on the same paper, was the following statement:

"I consider these people honest and reliable. I would suggest that you call at their office for examination and advice. Very truly yours, Dr. C. J. Cannon."

It seems obvious, therefore, that at least two years ago Dr. Cannon knew that Vreeland was using his testimonial. It is also rather difficult to believe that a mail-order concern could send out thousands and probably tens of thousands of circulars containing Dr. Cannon's testimonial, featured and signed in facsimile, without Dr. Cannon's knowing something about it. The mere fact that Dr. Cannon had not given his consent to Vreeland to use the testimonial is beside the point. Vreeland *did* use it in defrauding the public and evidently the doctor *did* write it. In any case, THE JOURNAL does not feel that it has done Dr. Cannon any injustice by calling attention to the fact that a testimonial (which, by implication, he admits writing) has been one of the come-on features of this fraudulent grow-hair-quick concern.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ULCERATIVE COLITIS

To the Editor:—I have a patient who has had ulcerative colitis for a period of six months. She has been on medical treatment throughout the whole of this time without making signal progress. We should like to try vaccine treatment. Would you kindly give complete information as to (1) preparation of culture mediums suitable for growing the diplococcus of Bargen; (2) details of making the vaccines and filtrates. Please omit name.

M.D., North Dakota.

ANSWER.—The organism is grown in dextrose brain-broth medium described by Rosenow and incubated for six hours. Subcultures are then made in tubes containing brain broth and in shake cultures with blood agar. It grows in these mediums in twelve hours. When the organism is isolated, the vaccine can be made up in the following way, as described by J. Arnold Bargen in the *Transactions of the American Proctologic Society*, 1927: "In preparing vaccines I have followed the methods of Rosenow. As soon as a pure culture of the diplococcus is isolated, heavy inoculations of pancreatic-digest broth described by Hartley, or 0.2 per cent dextrose broth, is made in 6-ounce bottles and incubated for forty-eight hours at 37 C. The whole culture is then shaken to make a uniform

mixture and put up in vials, to which is added 0.4 per cent tricresol. It is then subcultured and the subculture incubated for forty-eight hours as a test for sterility. Vaccine with a more accurate bacterial content may be prepared by centrifugating the 6-ounce bottles, suspending the precipitate in glycerin and sodium chloride solution and making up vaccines from this solution to a density of about 2,000,000,000 organisms for each cubic centimeter, and again killing with tricresol. Filtrates have been similarly prepared, but after the pancreatic-digest-broth cultures are centrifugated the supernatant fluid is passed through a Berkefeld filter. To the filtrate is added 0.2 per cent tricresol and this is incubated as before. After incubation for forty-eight hours to test for sterility, the vaccine or filtrate is ready for use. Injections are given subcutaneously and dosage depends entirely on the severity of the disease and the patient's tolerance. I always began with small doses, usually 0.1 cc. If no reaction occurs, the dose can be rapidly increased and an injection given every third day to the point of reaction or response in the way of subsidence of symptoms. Rarely is more than 1.5 cc. of filtrate necessary or more than 1 cc. of vaccine. When such a dose is reached, injections once a week usually suffice. If a reaction occurs with the first dose or soon thereafter, as is often the case, the dose should be reduced and the interval lengthened."

"AMERICAN PHYSICIANS AND SURGEONS" BIOGRAPHICAL DIRECTORY

To the Editor:—What is the status of the "American Physicians and Surgeons" directory, published by the Midwest Company of Minneapolis, Minn.? This concern has recently been circularizing New York City.

A. S. H., M.D., New York.

To the Editor:—A Schenectady physician has asked us concerning a proposition of the Midwest Company of Minneapolis, Minn., a publishing house which is compiling a directory of American physicians and surgeons.

BETTER BUSINESS BUREAU OF SCHENECTADY.

To the Editor:—I am being solicited by the Midwest Company of Minneapolis to O. K. for them a list of physicians and surgeons of this city, whose names they purpose to enter in some kind of a directory. Are these people all right?

J. R., M.D., Michigan.

To the Editor:—The enclosed material has been received by me and, I think, by all the other Seattle physicians whose names appear on the accompanying list. Some have asked my opinion concerning the "American Physicians and Surgeons," which is responsible for the letter. If you can give me some information concerning this organization and its reason for its existence, I will pass it on to the other inquiring doctors.

C. A. S., M.D., Seattle.

ANSWER.—The Midwest Company, we understand, is a trade style used by Mr. and Mrs. James C. Fifield in partnership. Mr. Fifield claims that it is his intention to publish a biographical directory of American physicians and surgeons, comparable in its field to the book that Mr. Fifield issues, "The American Bar," in the legal field. "The American Bar" seems to be held in esteem by men in the legal profession. The book comprises brief biographical sketches of various members of the American bar. The sketches are less detailed than those that appear in "Who's Who." So far as we have been able to learn, there is no commercial taint to this book. The book itself sells for $30 a volume.

Mr. Fifield, we understand, takes the names of Fellows of the American Medical Association, of the American College of Surgeons and of the American College of Physicians, as a starting point for a basis of eligibility for inclusion in his proposed book. He then submits to individual members of the group thus selected the names of other individuals in the same group, in the same locality. Each man is asked whether the other names (of men in the same locality) submitted to him are, in his opinion, eligible. We understand, further, that Mr. Fifield, at the same time that he submits this material to a physician, also endeavors to secure an order for the proposed book. There can be no objection to this, provided it is made quite plain that a subscription to the book is not, in any sense of the word, a *sine qua non* for eligibility to the book.

Mr. Fifield's idea, that his proposed directory will be of particular value to laymen who do not know where to turn for reliable medical advice and treatment, is, we think, a fallacy. Equally fallacious would appear Mr. Fifield's idea that it is not always possible for physicians to advise patients, who are moving to other cities, what physician to go to in the new city, and that this book will furnish such information. Further, Mr. Fifield's statement in his circular, that there is an urgent need for a carefully prepared directory of dependable physicians and surgeons, is, in our opinion, without justification. The American Medical Directory contains just such information and has the inestimable advantage of being an official book, issued by the profession itself. We further question the idea that the Midwest Company's publication will make plain, either to the layman or the physician, who are the "most skilful and reliable men in every branch of medicine and surgery."

In the stock-letter that Mr. Fifield sends to hospitals, urging them to furnish him with information, he states that his proposed book will contain only those institutions that are approved by the American College of Surgeons. This, in the nature of the case, will limit the usefulness of the proposed book in the very field that Mr. Fifield stresses—that of allowing laymen to decide where to go. The list of hospitals approved by the American College of Surgeons would not include those devoted, for instance, to the treatment of nervous and mental disorders, to the general treatment of tuberculosis, nor to other special groups outside of the surgical field. Such hospitals therefore would be wholly without representation in Mr. Fifield's book.

We believe that Mr. Fifield is reliable and honest. He seems to want to put his proposed "American Physicians and Surgeons" in the same rank as his "The American Bar," and there is no reason to believe that this proposed biographical directory is a "scheme" or a "racket."

ALCOHOL OR WHISKY

To the Editor:—In the case of a sick person who needs a stimulant and who, before falling ill, has been addicted to drinking whisky, is it perfectly safe to administer U. S. P. 190 proof alcohol, if it is diluted with water in the proportion of 55 per cent water and 45 per cent alcohol? Physicians in Alabama cannot prescribe whisky to a patient and sometimes they need it and I want your advice.

HARRIS P. DAWSON, M.D., Montgomery, Ala.

ANSWER.—It is entirely safe.

POSSIBLE NEURITIS FROM OVERDOSAGE OF ACETYLSALICYLIC ACID

To the Editor:—What effect would fifteen or twenty tablets (100 grains) of acetylsalicylic acid daily for three years have on a man? I have a patient who has a multiple neuritis. He swears he does not drink; he tasted jamaica ginger about a year ago, but he says he has been taking from fifteen to twenty of the tablets every day for three years. Please omit name.

M.D., Arkansas.

ANSWER.—Multiple neuritis does not seem to be produced by acetylsalicylic acid with any degree of frequency. One would rather look for gastro-intestinal disturbance, skin eruption, kidney irritation, depression of the circulatory or nervous system, and disturbances of the ears or eyes. While one would hesitate to state that such excessive use of acetylsalicylic acid might not be responsible for multiple neuritis, it seems more probable that the multiple neuritis is due to focal infection. The question might well be asked, Why has the patient been using so much of the drug? Might it not be because of the development of multiple neuritis due to some other cause?

VITAMIN C VALUE OF CANNED AND FRESH TOMATO JUICE

To the Editor:—Please advise me whether and why canned tomato juice is better than the fresh tomato juice as a substitute for orange juice in the diet of infants.

J. S. HOUGH, M.D., Livingston, Ala.

ANSWER.—Experiments conducted by Sherman, LaMer and Dr. Alfred Hess have shown that the juice of canned whole tomatoes contains practically the same amount of vitamin C as is found in fresh tomato juice. The two juices are therefore equivalent as far as vitamin C is concerned. In addition, the canned juice has been sterilized. Its use, therefore, does not involve changes that might be produced by active enzymes or by organisms.

PROCAINE HYDROCHLORIDE FOR ANESTHESIA IN TONSILLECTOMY

To the Editor:—What quantity of procaine is it safe to inject for local anesthesia in tonsillectomy? What per cent of solution is most used in local anesthesia for tonsillectomy? Please omit name.

M.D., Ohio.

ANSWER.—So far as we know, it has never been definitely established just what amount of procraine hydrochloride can safely be employed for local anesthesia in tonsillectomy. It is well established, however, that a fairly large amount can be used with perfect safety. Either a 0.5 per cent or a 1 per cent solution is most often used, and the injection of a drachm or two of this concentration has been employed in many thousands of cases without any untoward results. As a rule, from 1 to 1½ drachms (4 to 5.5 cc.) of this solution is sufficient to establish perfect anesthesia.

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SYPHILITIC GASTRO-INTESTINAL ULCERS

To the Editor:—1. What percentage of duodenal ulcers that perforate are of syphilitic origin? 2. May syphilitic ulcers exist without symptoms until the time of perforation? 3. Are syphilitic ulcers more likely to be symptomless than are other duodenal ulcers? 4. Are Wassermann-fast cases of syphilis more common in congenital or in acquired syphilis? 5. Would the presence of growing hair in the skin over a spina bifida indicate the presence of an additional anomaly such as a small dermoid cyst? The skin over this area is quite sensitive to touch but the bony covering is not good, judging from the roentgenographic appearance. Please omit name.

M.D., Washington.

ANSWER.—1, 2 and 3. Syphilis, per se, is not a cause of duodenal ulcer. Syphilitic arteritis of the duodenum or stomach or a generalized syphilitic infection may lower the resistance of the tissues or of the individual himself so as to prevent a cure or even favor a spread of the ulcer. Hence, syphilis if present requires active treatment.

4. Whether syphilis is acquired or congenital has no bearing on the question of being Wassermann fast. Congenital syphilis can ordinarily be diagnosed by a careful history and an examination for the stigmas.

5. No.

FORMATION OF ALCOHOL IN BODY

To the Editor:—In the *Literary Digest* for May 3, E. Case of Curtis, Neb., is quoted as a "doctor" who asserts that ethyl alcohol is not only produced during digestion but is (normally) absorbed following its regular production. Aroused by this remarkable assertation, I wrote to this man Case assuring him that though I had taught physiology or pharmacology some fifteen years, had read widely, and had published five books, I had never once come across any such statement; suggesting that perhaps he had some information not available to me, I asked him to tell me the source of his information. Today comes a letter from him saying: "I have never seen any explanation," and then he proceeds to assert it as his "belief" that "Man and Mammals" have acquired an "immunity" to ethyl alcohol, and proceeds in a rather rambling way to set up sundry claims. Now I would like to know just who is this man Case, whose name does not seem to appear in Who's Who or in "Men of Science."

A. D. BUSH, M.D., Decatur, Ga.

ANSWER.—The view expressed is probably based on the observation of Hoppe-Seyler and Rajewsky (*Arch. a. d. ges. Physiol.* **11**:122, 1875) who, having obtained traces of alcohol from fresh tissues by distillation with water, advanced the idea that a minute amount of alcohol is probably formed at a stage in metabolism of carbohydrates prior to their complete oxidation. The rest is pure speculation.

Dr. Ernest Spencer Case holds a diploma from the Medical Department of Omaha University for 1895 and a license to practice in Nebraska dated the same year. He is not a member of the American Medical Association.

THERAPEUTIC VALUE OF GLANDULAR EXTRACTS

To the Editor:—What is the therapeutic value of ovarian tissue given orally? What is the therapeutic value of pancreatic extract given by mouth in diabetes? I refer especially to "Trypsogen" (G. W. Carnrick Company). Please omit name.

M.D., North Dakota.

ANSWER.—Neither ovary nor pancreas, given by mouth, has any well marked therapeutic actions.

TREATMENT OF URTICARIA

To the Editor:—A woman, aged 32, single, is under my care for urticaria. The first onset occurred in August, 1929. She has been to different general practitioners and skin specialists, all of whom have prescribed but without results, the urticaria still persisting. She came under my observation about the early part of April. I made a diagnosis of a thyrotoxicosis associated with her urticaria and sent her to a metabolism man, who, after examining her carefully, corroborated the diagnosis and suggested a subtotal thyroidectomy. She followed the suggestion and went into a hospital under observation for five days and was then operated on by a reputable surgeon with good results as far as the thyrotoxicosis was concerned, as well as the urticaria, for that disappeared too. Sad to relate, it appeared again about fourteen days after operation, just as bad as before and driving the poor girl frantic. I have tried everything possible internally and externally, also acting on the gastro-intestinal tract, but no results. What I wish to know is how to proceed or of any possible suggestion to eradicate this urticaria. Please omit name.

M.D., New York.

ANSWER.—From the prompt recurrence it seems reasonable to infer that the operation did not remove the cause of the urticaria but that it was held in abeyance perhaps, by the depression following the operation. Has calcium therapy been tried? If not, calcium lactate and lactose, from 2 to 5 Gm. of each dissolved in hot water, should be given on an empty stomach morning and evening. No laxatives should be taken, only an occasional enema of physiologic solution of sodium chloride, if required. If this does not succeed, intravenous injections of Fischer's solution, or small doses of neoarsphenamine, even in nonsyphilitic patients, may be of help. Intramuscular injections of the patient's own blood or of one of the milk preparations may be tried. Skin tests are not often of help but should be tried. Food sensitization is best determined by elimination diets as proposed by Dale and Thornburg (Diets for the Identification of Food Allergies, THE JOURNAL, Aug. 17, 1929, p. 505).

SIGNIFICANCE OF GLYCURONIC ACID IN URINE

To the Editor:—The urine of one of my obstetric patients who is about seven months pregnant reduced Haine's solution and Benedict's solution. A blood sugar test, at that time, showed 88 mg. per hundred cubic centimeters of blood. I then sent a specimen of urine to a laboratory for analysis and I received the following report:

Benedict's solution: Reduction.
Nylander reagent: After standing, slight reduction.
Phenylhydrazine test: Negative.
Fermentation test: Negative.
Polarization: No rotation.

The reduction of alkaline metallic solution is probably due to the presence of glycuronic acid. Glycuronic acid is excreted by some patients who are taking various drugs, but this patient has not been on any medication. Can you give me any other sources of this acid? What is the prognosis? Can anything be done about it? Please omit name.

M.D., Chicago.

ANSWER.—Glycuronic acid (CHO-(CHOH)$_4$-COOH) is a partial oxidized product of dextrose (*d*-glucose). It is produced in the body, often excessively in diabetes mellitus, but its presence in the urine is not a diagnostic or prognostic criterion of diabetes mellitus. It combines freely with phenolic and alcoholic substances and especially chloral hydrate, chloramide, camphor, menthol, phenol, resorcinol, acetanelid, amidopyrine, antipyrine, morphine and cocaine. It may also combine with urea and other such substances as indoxyl, skatoxyl compounds and cresol. These often result from bacterial decomposition.

The prognosis is not materially affected by the finding of glycuronic acid in the urine. Intestinal putrefaction or metabolic changes in pregnancy may account for its presence. Other than attention to the intestinal tract and search for possible exposure to phenolic compounds, nothing can be done.

DIAGNOSIS OF PAIN IN TOE AND FOOT

To the Editor:—Please suggest diagnosis and treatment in the following case: A woman, aged 55, suffers intensely with cramp in the third toe of the right foot, and also pain under the ball of the same foot. She has attacks of cramp at irregular intervals and without any apparent cause, such as tight shoes or standing on the feet a long time. She can tell when an attack is coming by a tingling sensation in the toe and under her foot. She has suffered in this way for about three years and has not been able to get any relief from drugs, arch supports, wearing wide shoes, bathing or massage. She is often awakened during the night with these attacks. Please omit name.

M.D., North Carolina.

ANSWER.—The possibilities as to diagnosis are gout, a neuro-circulatory disturbance, a mechanical, toxic or metabolic disturbance, and all these must be ruled out. Roentgenograms may be of value in making the diagnosis. It might be advisable to provide proper resilient support but not rigid support, an elastic cuff for the metatarsal region, and special exercises to improve the power of the supporting structures of the metatarsal arch. It might also be advisable to massage with an anodyne ointment. A diet to reduce the weight should not be decided on unless necessary.

SUBGLOTTIC EDEMA

To the Editor:—A woman, aged 56, suffers from a subglottic edema which has apparently existed for a period of nine or ten months. The nose seems to be normal. She has had six children, all of whom are well. Her physician says that she has a mild nephritis but, he thinks, not enough to cause her laryngeal edema. Will you be kind enough to inform me as to where I can enlighten myself more fully on the subject?

ORTON E. WHITE, M.D., Cortland, N. Y.

ANSWER.—A subglottic edema is a serious condition and often calls for tracheotomy. Although the subject really merits more consideration, little reference to it is found in most textbooks on diseases of the nose and throat. Some mention is made of it in the works of Herbert Tilley and Sir St. Clair Thomson. Subglottic swelling is sometimes caused by rhinoscleroma, often called scleroma, and this may be confused with an edema of the subglottic structures from other causes.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 2, 1930. Sec., Dr. Harry C. DeVighne, Juneau, Alaska.

ARIZONA: Phoenix, Oct. 7 and 8, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

COLORADO: Denver, Oct. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

CONNECTICUT: New Haven, Oct. 11, 1930. Basic Science. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn.

IDAHO: Boise, Oct. 7, 1930. Comm., Hon. F. E. Lukens, Boise, Idaho.

IOWA: Des Moines, Sept. 2-4, 1930. Dir., Mr. H. W. Grefe, Des Moines, Iowa.

MINNESOTA: Minneapolis, Oct. 7 and 8, 1930. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn.

MONTANA: Helena, Oct. 7, 1930. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEW HAMPSHIRE: Concord, Sept. 11-12, 1930. Sec., Dr. Charles Duncan, Concord, N. H.

NEW YORK: Albany, Buffalo, New York City, Syracuse, Sept. 15-18, 1930. Mr. H. J. Hamilton, State Education Bldg., Albany, N. Y.

OKLAHOMA: Oklahoma City, Sept. 9, 1930. Sec., Dr. J. M. Byrum, Shawnee, Okla.

PORTO RICO: San Juan, Sept. 2-13, 1930. Sec., Dr. Diego A. Biascoechea, P. O. Box No. 804, San Juan, Porto Rico.

RHODE ISLAND: Providence, Oct. 2 and 3, 1930. Dir., Mr. L. A. Round, 319 State Office Bldg., Providence, R. I.

WISCONSIN: Milwaukee, Sept. 10, 1930. Special meeting for reciprocity cases. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis. Basic Science, Madison, Sept. 20, 1930. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

WYOMING: Cheyenne, Oct. 6, 1930. Sec., Dr. H. W. Hassed, Capitol Bldg., Cheyenne, Wyo.

Nebraska June Examination

Mrs. Clark Perkins, director of the Bureau of Examining Boards of Nebraska, reports the written examination held at Omaha, June 10-12, 1930. The examination covered 10 subjects and included 97 questions. An average of 75 per cent was required to pass. Twenty-nine candidates were examined and passed. Two physicians were licensed through reciprocity with other states and 2 by the endorsement of credentials. The following colleges were represented:

PASSED			
College		Year Grad.	Per Cent
Creighton University School of Medicine		(1930)	79.5, 80.7, 81.7, 82.6, 84.5, 86.3, 87
University of Nebraska College of Medicine		(1929)	79.2 (1930): 76.7, 79.8, 80.1, 80.5, 80.7, 80.9, 82, 82.5, 83.9, 84, 84.2, 84.2, 84.7, 85, 85.2, 85.7, 85.9, 86, 88, 88.2
LICENSED BY RECIPROCITY			
College		Year Grad.	Reciprocity with
University of Kansas School of Medicine		(1926)	Kansas
University of Wisconsin Medical School		(1927)	Wisconsin
ENDORSEMENT OF CREDENTIALS			
College		Year Grad.	Endorsement of
Northwestern University Medical School		(1929)	N. B. M. Ex.
Harvard University Medical School		(1927)	N. B. M. Ex.

Idaho April Examination

Hon. F. E. Lukens, commissioner of Law Enforcement of the Medical Examining Board of Idaho, reports the written examination held at Boise, April 1-3, 1930. The examination covered 13 subjects and included 130 questions. An average of 75 per cent was required to pass. Three candidates were examined and passed. Four physicians were licensed through reciprocity with other states and 1 by the endorsement of credentials. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
Northwestern University Medical School	(1929)	79
Rush Medical College	(1929)	75
University of Louisville School of Medicine	(1929)	81
LICENSED BY RECIPROCITY		
College	Year Grad.	Reciprocity With
College of Medical Evangelists	(1928)	Wash.
Kansas Medical College	(1907)	Kansas
University of Oregon Medical School	(1927)	Oregon
University of Pennsylvania School of Medicine	(1916)	Mass
ENDORSEMENT OF CREDENTIALS		
College	Year Grad.	Endorsement of
Northwestern University Medical School	(1928)	N.B.M.Ex.

Vermont June Examination

Dr. W. Scott Nay, secretary of the Board of Medical Registration of Vermont, reports the written examination held at Burlington, June 18-20, 1930. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined and passed. Three physicians were licensed by the endorsement of credentials. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent
University of Vermont College of Medicine	(1930)	83.3 86, 86.1, 86.5, 87.2, 88.2, 89.9, 90.1, 90.3, 90.3, 90.9, 91.6
McGill University Faculty of Medicine	(1929)	89.3
University of Montreal Faculty of Medicine	(1925)	76.1
ENDORSEMENT OF CREDENTIALS		
College	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine	(1926)	N. B. M. Ex.
Boston University School of Medicine	(1928)	Mass.
New York University Medical College	(1896)	New York

Book Notices

THE PRINCIPLES OF CLINICAL PATHOLOGY IN PRACTICE: A Guide to the Interpretation of Laboratory Investigations for the Use of Those Engaged in the Practice of Medicine. By Geoffrey Bourne, M.D., M.R.C.P., Casualty Physician, Demonstrator of Practical Medicine, and Chief Assistant to the Cardiographic Department, St. Bartholomew's Hospital, and Kenneth Stone, M.D., M.R.C.P. Cloth. Price, $4.75. Pp. 392, with 10 illustrations. New York: Oxford University Press, 1929.

There are eight chapters, on diseases of the blood, diseases of the cardiovascular, gastro-intestinal, respiratory and urogenital systems, specific infections, metabolic diseases and allergic diseases. Each chapter is a delightful brief essay devoted to interpreting the results of laboratory examinations for clinical diagnosis. Since accounts of the minute details of laboratory technic and methods are omitted and symptoms are touched on, the work offers something new in bridging the gap between ward and laboratory studies. The estimate placed on the aid to clinical diagnosis from laboratory research is conservative throughout. The authors have attempted "to collect what are accepted as the most constant clinical pathological findings in disease, to state when the result of a test, whether positive or negative, is of value, and to record when such a test is worth doing and when it is incapable of giving help." Particularly commending this work to the attention of the clinician is the effort to provide information preventing special investigations, so frequently undertaken "without knowing to what extent a positive, a negative or an equivocal answer will react upon his clinical conception of the case." Since so many totally aimless laboratory tests are made at present, on *carte blanche* orders, explicit directions for what is desirable from laboratory examinations and evaluation of their results ought to meet with a cordial reception by both groups, the one busy with the involved apparatus of laboratories, the other occupied with patients.

ERGEBNISSE DER MEDIZINISCHEN STRAHLENFORSCHUNG (RÖNTGENDIAGNOSTIK, RÖNTGEN-, RADIUM- UND LICHTTHERAPIE). Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius und H. R. Schinz. Band IV. Paper. Price, 71 marks. Pp. 694, with 395 illustrations. Leipzig: Georg Thieme, 1930.

This volume of a system devoted to the application to medical work of roentgen rays, radium and ultraviolet rays deals with diagnostic and therapeutic problems concerning the stomach, the upper urinary tract and the uterus. The possibilities of light therapy and the possible harm produced by it are discussed in an instructive chapter. Of great interest from the point of view of modern concepts is the elaboration on the relation of radiotherapy to the histologic peculiarities of uterine cancer. The roentgen appearance of the stomach following the various operations on the stomach furnishes valuable material. The closing chapter deals with the therapeutic application of medical and surgical diathermy to disorders of the pharynx, the nose and the ear. The world's literature is extensively reported. The illustrations are of a high order. A complete index facilitates the orientation of the reader.

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NORMAL FACTS IN DIAGNOSIS. By M. Coleman Harris, M.D., Lecturer on Physical Diagnosis, New York Homeopathic Medical College and Flower Hospital, and Benjamin Finesilver, M.D., Lecturer on Diseases of the Nervous System, New York Homeopathic Medical College and Flower Hospital. Cloth. Price, $2.50 net. Pp. 247, with 42 illustrations. Philadelphia: F. A. Davis Company, 1930.

The aim of the authors is to furnish a concise description of normal results obtained by physical and laboratory examination of patients. This is accomplished in simple language, enabling the reader to form a clear picture in order that he may more easily recognize abnormal observations. Recent procedures, such as the determination of blood pressure by the sphygmotonograph and the study of electrocardiographic tracings and diagnosis of gallbladder disease by cholecystography, are described briefly but are not overemphasized, so that their relative importance for the general practitioner is not exaggerated. The greater part of the book deals with the older and established methods of examination, including a comprehensive discussion of the nervous system. The authors attempt to correct possible misconceptions, such as the widespread belief that the actual apexes of the lungs may be percussed when it is only the projection of the pulmonary apexes on the surface examined that is actually determined. The chapter on laboratory diagnosis deals with the more common procedures and the results obtained normally. This little volume contains much valuable and practical information for the student and the general practitioner.

DIE CHIRURGIE: EINE ZUSAMMENFASSENDE DARSTELLUNG DER ALLGEMEINEN UND DER SPEZIELLEN CHIRURGIE. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Band III, Lieferung 25. Die Chirurgie des Gehirns und seiner Häute. Von Prof. Dr. Egon Ranzi. Die Chirurgie des vegetativen Nervensystems. Von Prof. Dr. F. Brüning und Prof. Dr. O. Stahl. Cloth. Price, 15 marks. Pp. 387-608, with illustrations. Berlin: Urban & Schwarzenberg, 1929.

The twenty-fifth section contains surgery of the brain and meninges by Dr. Egon Ranzi of England and surgery of the vegetative nervous system by Drs. Friedrich Brüning and Otto Stahl of Berlin. In its general aspect and mode of treatment of the subject, this section resembles sections that have previously appeared. The same praiseworthy traits exhibited in previous sections are exhibited here: careful work, beautiful pictures and an excellent bibliography; also the same drawbacks.

GYNECOLOGY FOR NURSES. By George Gellhorn, M.D., F.A.C.S., Professor of Gynecology and Obstetrics and Director of Department, St. Louis University School of Medicine. Cloth. Price, $2. Pp. 275, with 145 illustrations. Philadelphia: W. B. Saunders Company, 1930.

The nurse who once reads this book will not only be enriched by a clear understanding of nursing in this special field of surgery but will also treasure it as a ready reference to gynecologic subjects. There is so much accurate and concise information included that one marvels in reading it how the author included as much in so short a space. The art of the real teacher of medicine is indeed in evidence here. Scarcely anything of importance in gynecology has been omitted, and nothing irrevelant seems to be included. The keynote of gynecologic nursing is expressed by the author in the opening sentence of part II, "It is the duty of the nurse to render conditions convenient to the doctor and to reduce the patient's discomfort as much as possible." The book is well edited, clear readable type and good quality smooth paper being used; ample and wisely selected illustrations are included. The last chapter is devoted to a short history of gynecology. Every student of medicine as well as of nursing would profit by the reading of these few pages, which epitomize the phenomenal development of this branch of surgery. The omission of credit to the work of Oliver Wendell Holmes in the prevention of puerperal sepsis is a regrettable error.

DIE REGULIERUNG DES BLUTKREISLAUFES GLEICHZEITIG EIN BEITRAG ZUR PHYSIOLOGIE DES VEGETATIVEN NERVENSYSTEMES. Von Dr. W. R. Hess, o. ö. Professor und Direktor des Physiologischen Institutes der Universität Zürich. Paper. Price, 12 marks. Pp. 162, with 21 illustrations. Leipzig: Georg Thieme, 1930.

Hess has written a fine monograph on regulation of circulation and every page may well be thoroughly read and studied by internists. Each is filled with a summary of present-day knowledge set forth in a highly adequate fashion.

MEDICAL SERVICE: ITS RELATION TO COLLECTIONS: HOW TO COLLECT. By Alfred Hendrickson. Cloth. Price, $4. Pp. 218. Minneapolis: Augsburg Publishing House, 1930.

As the name indicates, this book contains chapters on various subjects, such as the waiting room, office examinations, tact and contact, medical fees, credit and collections, collection policy, and collection agency procedure. It may be said that the information and advice given are sound and probably of use to the young practitioner, but too elementary to be of educational value to the man in practice. The chapter on collection agency procedure suggests a pseudocollection agency in the physician's own office, giving it a fancy name of some kind. With an arrangement of that kind, patients will sooner or later discover that the collection agency is but an imaginary one and will not only ignore their indebtedness, but will seek other sources for medical advice. For physicians, the ideal way to have their collections handled may be through a collection agency conducted by their respective county medical society. An agency of this kind has been established by several of the medical societies. In any event, if one finds it necessary to enlist the services of a collection agency, it should be an agency of unquestionable reputation, and the contract should be thoroughly understood before one enters into it.

ANATOMISCHE ORGANKRANKHEITEN AUS SEELISCHER URSACHE. Von Dr. Med. Leopold Alkan. Band IV: Hippokrates-Bücher für Ärzte. Herausgegeben von Paul Federn and others. Paper. Price, 9 marks. Pp. 142. Stuttgart: Hippokrates-Verlag, 1930.

This short monograph discusses in outline form the organic diseases of psychogenic origin. It is extremely brief and contains much controversial matter stated as facts. It is, however, a rather nice introduction to the subject.

TEXT BOOK OF PATHOLOGY INCLUDING BACTERIOLOGY, ANIMAL PARASITOLOGY, LABORATORY METHODS AND LABORATORY DIAGNOSIS OF DISEASES. By Dhirendra Nath Banerjee, M.B., M.D., Demonstrator of Pathology, Carmichael Medical College. Second edition. Cloth. Pp. 646, with 314 illustrations. Calcutta: The Medical Bureau, 1929.

Pathogenic plant and animal parasites, general pathology and methods of clinical laboratory examinations are the subjects comprising this manual for medical students in India. By abridging the material, after the practice in compends, the author has set forth a large amount of information, especially in the field of tropical medicine. He worked for a time in Berlin with Erwin Christeller, whose recent death at an early age was widely lamented, and at another time with Unna, the Hamberg dermatologist, also recently dead in his eightieth year. The influence of each of these investigators is evident in this book. For physicians in temperate climates the novelty of the tropical diseases illustrated compensates somewhat for the crudeness of the illustrations. In other particulars the workmanship is as good as the average, or better.

THE DRAMATIC IN SURGERY. By Gordon Gordon-Taylor, O.B.E., M.A., F.R.C.S., Surgeon to the Middlesex Hospital. Cloth. Price, $4 net. Pp. 88, with 40 illustrations. New York: William Wood & Company, 1930.

This book includes in substance an address by the author involving the dramatic and spectacular in surgery from his own experiences and those of others reported in the literature. The removal of a large tumor may be more dramatic, but it is not always so brilliant as the removal of a small one from an almost inaccessible location. Instances of both these phases of surgery are included. The surroundings may add to the dramatic in surgery, as in operating in a dugout near the front line trenches, where immediate attention permits the saving of many lives. The airplane has permitted dramatic success in the rapid transportation of both the wounded and the surgeon. Certain unusual circumstances may attend the type of injury or the disease. Injuries to famous athletes may add dramatic interest. Instances are included of unexpected compensations following operative removal of certain organs. Plastic surgery is included because of the results that were obtained, and the renewed interest shown in it, during the World War. Certain instances of recovery in a dramatic manner are included because of a courageous surgical attack on an apparently hopeless condition. There are numerous excellent illustrations, some of which are colored, which add interest to this entertaining essay on a varied group of unusual surgical cases.

DIE CHIRURGIE: EINE ZUSAMMENFASSENDE DARSTELLUNG DER ALLGEMEINEN UND DER SPEZIELLEN CHIRURGIE. Herausgegeben von Prof. Dr. M. Kirschner und Prof. Dr. O. Nordmann. Lieferung 26. Band II. Teil 2. Die Chirurgie der Knochen. Von Priv.-Doz. Dr. Leopold Schönbauer. Paper. Price, 18 marks. Pp. 1583-1828, with 176 illustrations. Berlin: Urban & Schwarzenberg, 1930.

The twenty-sixth section of "Die Chirurgie" deals with the surgery of bone, and is written by Dr. Leopold Schönbauer of Vienna. The subject matter, as a whole, is well dealt with. There is, however, an impression of disproportion of space and effort. Rarer conditions are dealt with and excellently presented at the sacrifice of detail and space to more common general pathologic conditions. In this day it is far more important to show pictures of early pathologic changes rather than to demonstrate unusual and far advanced conditions. The bibliography is excellent.

THE STHENICS: THE CHORD INVISIBLE. By Sir James K. Fowler, K.C.V.O., C.M.G., M.D. Boards. Price, $1.40. Pp. 81. New York: Macmillan Company, 1930.

In this booklet of some few thousand words, the author concerns himself with the senses of man, with their evolution and with the finding in every community of certain people who are more highly sensitized than others — these people he calls *sthenics*. One of his chapters is concerned with the epilepsy from which Napoleon is alleged to have suffered. Dr. Fowler would place Napoleon with the sthenics rather than with the epileptics. He also analyzes the lives of other great men from this point of view. It is his opinion that some individuals tend to develop much more epinephrine than do others and that, as a result, they have a different type of living and performance.

TRATADO GENERAL DE RADIOLOGÍA MÉDICA, BIOLOGÍA, PATOLOGÍA Y TERAPÉUTICA. Bajo la dirección del Prof. Dr. Pablo Lazarus. Traducción directa del alemán por los Dres. Luis Recasens y Vicente Belloch, catedráticos respectivamente de las Facultades de Medicina de Zaragoza y Cádiz. Tomo I. Cloth. Pp. 860, with 161 illustrations. Barcelona: Manuel Marín, 1930.

The notable names of the collaborators, numbering sixty-two professors of the various countries of Europe and the United States, constitute the roll of the most prominent living medical men who have distinguished themselves in the field of medical radiology. Such authorship insures a valuable production. The work was in German originally and has been translated into Spanish; in this manner it will reach a large number of physicians in the Spanish-speaking world who are unable to read German. The present volume takes up in great detail the influence of irradiation on normal and malignant tissues, discusses roentgen dosimetry and protective measures necessary in carrying out roentgen therapy, and has a final chapter on the application of roentgen therapy in the treatment of disease. The first edition of the German work appeared in 1912 and many of the contributors have died. The present edition is the work of a new group of contributors, all of whom, with the exception of Opitz, are still alive. In this volume the text treats the chief points which the practicing physician should and can know, and the general biologic and physical principles that should govern him in his therapeutic efforts. In the second volume, which has not yet appeared in Spanish, the clinicians plan to set forth the knowledge acquired from experience and the practical results from actinotherapy, including not only roentgen rays but radium, sunlight and artificial sunlight.

VACCINATION PRÉVENTIVE ET CURATIVE DU COBAYE ET DU LAPIN CONTRE LA TUBERCULOSE HUMAINE, SES INDICATIONS ET SES EFFETS CHEZ L'HOMME. Par Jules Auclair, médecin de l'Hôpital temporaire du Bastion 29. Paper. Price, 25 francs. Pp. 184. Paris: Masson & Cie, 1930.

In this treatise, Auclair's experiments of recent years on immunization against tuberculosis are compiled in book form. The relation of the pancreas to immunity is stressed, and good results are reported from vaccination against tuberculosis with tubercle bacilli treated with pancreatic juice. His success with other forms of vaccination, as with dead bacilli and small doses of live bacilli, confirms what has already been reported many times.

ULTRA-VIOLET RAYS IN THE TREATMENT AND CURE OF DISEASE. By Percy Hall, M.R.C.S., L.R.C.P., Hon. Actino-Therapist, the Mount Vernon Hospital, London and Northwood. With introduction by Sir Henry Gauvain, M.A., M.D., M.C., Medical Superintendent, Lord Mayor Treloar Cripples' Hospitals, and Leonard E. Hill, M.B., F.R.S., Director, Department of Applied Physiology and Hygiene, National Institute of Medical Research, London. Fourth edition. Cloth. Price, $4.50. Pp. 248, with 64 illustrations. St. Louis: C. V. Mosby Company, 1930.

The author discusses the subject of ultraviolet radiation and includes a complete discourse of the other components of sunlight. There is a free discussion of all the recent advances in the field of actinotherapy. Numerous illustrations show the spectrums of the energies derived from the various types of apparatus; the mode of determining dosage, the precautions to be observed and the methods of application are inocorporated in the text. A chapter is devoted to the physiologic and pathologic effects of ultraviolet radiation. Here the author not only gives his own experience but also includes that of other workers in the field of actinotherapy. The use of ultraviolet radiation for diseases of the skin, tuberculosis, and metabolic disorders is described. Numerous case reports substantiate the author's claim for the use and value of actinotherapy in these conditions. It would be difficult to find a more comprehensive book on ultraviolet radiation, with the subject so well written.

RADIUM IN GENERAL PRACTICE. By A. James Larkin, B.Sc., M.D., D.N.B., Radium Consultant on Staffs of Wesley Memorial, German Evangelical Deaconess, John B. Murphy, Washington Park Community Hospitals, Chicago. Cloth. Price, $6 net. Pp. 304, with 28 illustrations. New York: Paul B. Hoeber, Inc., 1929.

This is a handy manual which presents concisely the fundamentals of radium therapy. The volume deals with the treatment of the common conditions either amenable to or palliated by radium therapeusis. The simplicity of arrangement affords rapid reference for the application of radium in any particular disease and from this standpoint should prove of value to the general practitioner. A preliminary discussion of the essential physical concepts of radium affords the reader a concrete idea of the power of the agent with which he is working. This is followed by a description of some of the commoner types of applicators and screens in current use. The experienced radium therapeutist, however, may be inclined to disagree with some of the contraindications, though perhaps it would be quite well for the individual with less experience to keep them in mind when using radium. Certain constant repetitions tend to become somewhat monotonous.

LE CANCER: Maladie des cicatrices. Par Auguste Lumière, correspondent de l'Institut. Préface de M. le Professeur L. Bérard, professeur de clinique chirurgicale à l'Université de Lyon. Paper. Price, 18 francs. Pp. 287. Paris: Masson & Cie, 1929.

In 1920 the minister of hygiene of France, at the instigation of Professor Bergonié and Dr. Paul Strauss, established regional centers where indigent persons are examined and treated for cancer, "Centres régionaux de lutte contre le cancer." There are six in Paris, and the Institute du Cancer established in 1925 is at Villejuif, a suburb of Paris. Ten others are in such cities as Bordeaux, Marseilles, Rheims and Toulouse, and others are in prospect, including one in Algiers. That at Lyons is under the direction of Professor Bérard, and this small dissertation is a result of the part Lumière has taken in the work there for many years. The author is well known from other books he has written. In several of these books, the subjects have to do with the relation of colloids and colloidal chemistry to problems of biology in general, or of medicine in particular. There is nothing especially new in this little volume. It affords an hour or so of agreeable reading. "Cicatrices," equivalent to chronic irritation and its effects, is the main theme and a long list of habits, precancerous lesions and irritants that may be responsible for carcinomas is given: the chewing of betel nuts, pipe smoking by negresses in Colombia, and abdominal burns from portable stoves among the Kashmirs, as well as the more generally known roentgen burns, keratoses and leukoplakias. A large portion of the book is taken up with an interesting chapter on the nonsurgical treatment of cancer. In another chapter by mathematical laws of probability applied to the number of deaths from cancer in Paris, the population and number of domiciles, the impossibility of dwelling infections and so-called cancer houses is demonstrated.

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Miscellany

REPORT ON HEALTH CONDITIONS IN PORTO RICO

In response to President Hoover's request that a committee of the American Child Health Association make a study of health and social conditions in Porto Rico, a report of the recommendations has been recently issued. The committee found that, in addition to a background of the age-old poverty and peonage existing in the majority of the rural people, there is the additional physical and mental burden of anemia-producing diseases, overcrowding and extreme destitution, especially in the large cities. The infant mortality for 1929 was 179 in Porto Rico as compared with 69 in the United States. The fertility of the lower classes has been operating at a maximum, with illegitimacy prevalent. A third of the marriages are said to be illegal. From 90 to 100 per cent of the rural people suffer from hookworm infestation and other intestinal parasites. Malaria is endemic on the coastal plains of the island, with frequent outbreaks affecting from 15 to 35 per cent of the people in local epidemic areas. The death rate in Porto Rico in 1928 was 128 per hundred thousand, and, in 1929, 163. Underfeeding and malnourishment are prevalent, owing mainly to a poorly balanced diet. The island is clearly overcrowded, there being 400 individuals per square mile. The death rate from tuberculosis is the highest reported on the western hemisphere, having been 301 per hundred thousand in 1929. The deaths due to tuberculosis amounted to 4,442. There were 410 hospital beds devoted to tuberculous patients. The committee recommends, for the economic and physical rehabilitation of the island: hospitalization of open cases of tuberculosis with the provision for one bed for each annual death from tuberculosis in the area; the division of the island into twenty sanitary districts and each district provided with a full-time health unit, and a drainage survey leading particularly to the drainage of 4,000 acres on the north coast for the control of malaria and the location of surplus population. On the submittal of the report, President Hoover suggested that the American Child Health Association and allied agencies work with the insular government to correct the conditions found. As a result, the Porto Rico Child Health Committee was formed with Dr. Samuel J. Crumbine chairman.

MORTALITY IN RELATION TO IMPAIRED HEARTS

In a recent statistical bulletin of the Metropolitan Life Insurance Company, it was stated that mortality increases with the increasing degree of hypertrophy and mitral regurgitation. The ratio of actual to expected deaths in the two groups is 214.2 per cent for patients without hypertrophy, and 299.7 per cent for those with it. The mortality of persons under 40 with hypertrophy is 50 per cent in excess of those with hearts of normal size, but after that age the difference between groups is nominal. In a group of white males with mitral regurgitation, the death rate was more than twice that of normal persons, and among the white females it was nearly three times as high. Among Negroes the male death rate was three and one half and the female three times the normal. The extent to which persons actually die of heart disease is most striking. Among white males, 39 per cent of the deaths were due directly to the organic heart condition and in 9 per cent more the heart condition was an important factor. Few deaths were reported from acute heart disease, and these were probably terminal conditions only or acute manifestations of the chronic disease. While heart disease is due in many cases to rheumatic fever and focal infection, the study emphasizes an aspect of preventive medicine often forgotten—the factor of childhood diseases as a foundation of adult heart impairments.

Medicolegal

Determination of Mental Soundness by Lunacy Commission in Criminal Cases Constitutional

(State v. Burris. In re Burris, (La.), 125 So. 580)

Burris was indicted for murder. He pleaded present insanity and insanity when the homicide was committed. Under the Louisiana Code of Criminal Procedure, a commission of three persons was appointed to report on his plea. A majority reported that he was insane and irresponsible when the homicide occurred, but that he was sane when the report was filed. Article 268 of the Louisiana Code of Criminal Procedure provides that if the report of such a commission, or of a majority of its members, is that the accused is at present insane or that he was insane at the time of the commission of the crime charged against him, he shall forthwith be committed to the criminal ward of a hospital for the insane. The trial judge, however, notwithstanding the report of the majority of the members of the commission, refused to commit the accused to an insane asylum. Article 272 of the Code provides that whenever it is alleged that a person has regained his reason, who was committed to a hospital because insane when the crime charged against him was committed, a rule to show cause why such person should not be released shall be laid on the district attorney of the parish from which the person was committed. The trial judge, however, refused to lay such a rule on the district attorney. He declared his intention of holding the accused for trial by jury, on the question of his guilt or innocence, and of permitting him to urge any legal defense at the trial, including insanity. Thereupon the accused applied to the Supreme Court of Louisiana for a writ of certiorari, prohibition and mandamus, to review the ruling of the trial court.

Article 268 of the Code, said the Supreme Court, provides that: "If said report [of the lunacy commission] be that the accused is presently insane, *or* was insane at the time of the commission of the crime, he shall forthwith be committed to the criminal ward of a hospital for the insane, there to remain until discharged in due course of law." The disjunctive "or" was used for the obvious purpose of providing that the accused, if the report shows that he was insane at the time of the commission of the crime, shall be sent to the criminal ward of an insane asylum, even though the report shows that he is no longer insane. The objection that a district judge is without authority to commit a person to an insane asylum when the lunacy commission reports that he is at present sane, even though he was insane at the time of the commission of the offense charged against him, cannot be sustained in view of the express provisions of the Code. The very purpose of the Code in ordering that the accused be committed to an insane asylum is to remove him from society, as a menace, until it appears that he has with reasonable certainty sufficiently regained his sanity and that his insanity will not return.

The district court thought it improper to carry out the report of the majority of the lunacy commission or to comply with the requirements of the Code, because no provision was made whereby the state might contest before the court the correctness of the report of the commission. It is needless to say, said the Supreme Court, that there is a marked distinction between the rights of the state and the rights of the accused in criminal cases. Section 9 of article 1 of the Constitution, 1921, relative to the right of trial by jury in cases punishable at hard labor or with death, is a guaranty in favor of the accused only, and not of the state. The state has no such guaranty. In every instance in which the report of the commission is unfavorable to the accused, he has the right of trial, by jury when the indictment is so triable, and by the judge alone, sitting without a jury, when the indictment is triable in that way. This conforms with the constitutional guaranty. The constitutional guaranty gives the state no right to a trial by jury.

The district court thought it improper to carry out the report of the majority of the lunacy commission or to comply with the mandates of the Code, in effect, because it believed that the provisions of the Code violated certain provisions of the Con-

stitution relative to the district courts and to the Supreme Court, with respect to matters such as that before the court. It is true, said the Supreme Court, that section 41 of article 7 of the Constitution, 1921, establishes a tribunal for the trial of criminal cases, in providing for trial by jury, which is as binding on the state as it is on the accused. But that section relates to the trial only of criminal cases. The proceeding of the lunacy commission inquiring into the sanity of the accused is not a trial, even of the plea of insanity; it is merely an investigation by a board designated by law for that purpose, into the sanity of the accused, followed by a report to the court. The Code does not treat such an investigation as a trial, but only as a preliminary step toward a possible trial. The trial of the plea of insanity is to be proceeded with only in the event that the report of the commission is that the accused is at present sane and was sane when the offense was committed. If the report of the commission is that the accused was insane, the state is bound by it and cannot contest its correctness. There are no constitutional objections to this. The legislature, in the absence of constitutional restrictions, has a clear right to fix conditions under which a state may prosecute, and it may provide for the determination by a board as to whether those conditions do or do not exist.

For the reasons stated, the Supreme Court ordered that the trial judge grant the order committing the accused to a criminal ward in the hospital for the insane at Jackson, there to be kept as provided by law.

In a dissenting opinion, O'Niell, C. J., said that in his opinion the provisions of the Louisiana Code of Criminal Procedure for the trial of pleas of insanity in criminal prosecutions are violative of the fundamental rule established by the Constitution of Louisiana and the constitution of every other state; that in a prosecution for a felony, the jury alone must decide all questions of fact on which depends the guilt or innocence of the defendant. The judge alone must decide all questions of law, and all questions of fact that do not determine the question of guilt or innocence but which must be decided in order to rule on a question of law. The question of sanity or insanity of a person accused of crime, at the time of the commission of the act with which he is charged, is a question of fact on which depends the guilt or innocence of the accused. Such a question must be decided by the jury which decides ultimately the question of guilt or innocence. The question of sanity or insanity at the time when the accused is called for trial is a question of fact relating only to the matter of procedure; it has nothing to do with the question of guilt or innocence and should be determined by the judge alone, before whom the case is tried. Under the Louisiana Code of Criminal Procedure, the lunacy commission appointed by the judge, when it decides that the accused person was insane when the homicide was committed, decides finally the question of guilt or innocence. Worse than that, under the Code, the judge must commit to an insane asylum an accused person, notwithstanding that the lunacy commission has decided that he is sane. The legislature was forbidden by the Constitution, said O'Niell, C. J., to vest such authority or jurisdiction in a lunacy commission.

Statutory Malpractice; Prevention of Blindness.—Section 5038, Compiled Laws of Michigan, 1915, makes it the duty of any physician having charge at the birth of an infant, or having care of the infant after birth, to treat its eyes with a prophylactic approved by the state board of health and provides that such treatment shall be given as soon as practicable after the birth of the infant and always within one hour. In the present case, the infant was born in the absence of a physician, and the physician who was summoned did not see it until eight hours after birth. He did not treat the infant's eyes with a prophylactic, and the infant became blind. By a divided court, the Supreme Court of Michigan held that the statute, by providing that treatment shall be given "always within one hour," indicates that in the opinion of the legislature later treatment would be useless, if not dangerous. If good practice required the treatment of the infant's eyes eight hours after its birth, the defendant may be liable civilly for malpractice, but he cannot be convicted criminally. In a dissenting opinion it was pointed out that, in view of the obvious purpose of the statute, it would be absurd to say that it was intended to limit the time in which a physician should act to one hour after birth. Undoubtedly, treatment five minutes after that time would be just as beneficial as though given during the hour. That provision of the statute, continued the dissenting opinion, in which time of treatment is specified, means that it should be administered always within one hour after birth if possible, and, if not possible, as soon as practicable thereafter. The judgment of the trial court in favor of the defendant was affirmed under the majority decision, although the minority opinion held that the undisputed facts showed a violation of the statute by the defendant.—*People v. Clobridge (Mich.), 228 N. W. 692.*

Dying Declarations: Realization of Impending Death.—Whenever the victim of an assault is in a dying condition, and realizes it, his statements concerning the cause of his injuries are admissible in evidence. That he is in such condition may be shown by the nature of his wounds and the result thereof. His knowledge may appear from declarations made to him or by him. The nature of the wounds is also important as bearing on the injured person's knowledge of his condition. It is not necessary for the declarant to state that his declarations are made under a sense of impending death. In the face of his condition and the information given him, with no hope of recovery expressed by him, and his death following shortly thereafter, it may be safely assumed that he realized he was about to die.—*Commonwealth v. Guida (Pa.), 148 A. 501.*

Society Proceedings

COMING MEETINGS

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Niagara Falls, Canada, September 15-17. Dr. James E. Davis, 1825 Geddes Avenue, Ann Arbor, Mich., Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Roentgen Ray Society, West Baden, Ind., September 23-26. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

Associated Anesthetists of the United States and Canada, Winnipeg, August 28-31. Dr. F. H. McMechan, 770 West Lake Road, Avon Lake, Ohio, Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, Washington, D. C., Sept. 25-27. Dr. J. R. Kean, Army Medical Museum, Seventh and B Streets, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Kansas City and Excelsior Springs, Missouri, October 9-11. Dr. E. D. Plass, University Hospital, Iowa City, Iowa, Secretary.

Colorado State Medical Society, Pueblo, September 9-11. Mr. H. T. Sethman, Metropolitan Building, Denver, Executive Secretary.

Delaware, Medical Society of, Dover, Oct. 7-8. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Indiana State Medical Association, Fort Wayne, September 24-26. Mr. T. A. Hendricks, Hume-Mansur Bldg., Indianapolis, Executive Sec'y.

Kentucky State Medical Association, Bowling Green, September 15-18. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Benton Harbor, September 15-17. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Nevada State Medical Association, Reno, September 26-27. Dr. H. J. Brown, Box 688, Reno, Secretary.

Oregon State Medical Society, Portland, September 18-20. Dr. F. D. Stricker, 301 Oak Street, Portland, Secretary.

Pacific Coast Oto-Ophthalmological Society, Victoria, B. C., Canada, September 4-6. Dr. Walter F. Hoffman, 817 Summit Avenue, Seattle, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, September 9-11. Dr. M. M. Critchlow, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, Burlington, October 2-3. Dr. William G. Ricker, 33 Main Street, St. Johnsbury, Secretary.

Washington State Medical Association, Bellingham, September 9-11. Dr. C. H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Western Branch of the American Urological Association, Los Angeles, September 4-6. Dr. H. W. Howard, 193 Eleventh Street, Portland, Ore., Secretary.

Wisconsin, State Medical Society of, Milwaukee, September 10-13. Mr. J. G. Crownhart, 119 E. Washington Ave., Madison, Executive Sec'y.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics & Gynecology, St. Louis

19: 739-908 (June) 1930

*Ovarian Deficiency as Cause of Sterility. D. Macomber, Boston.—p. 739.
*Extraperitoneal Cesarean Section. K. B. Steele, New York.—p. 747.
Latzko Extraperitoneal Cesarean Section. H. T. Burns, New York.—p. 759.
*Pupillary Reactions of Pregnant and Nonpregnant Women and Practical Application to Diagnosis of Pregnancy as Simple Procedure. Z. Bercovitz, New York.—p. 767.
Modern Aspects of Backward Displacement of Uterus. J. C. Hirst, Philadelphia.—p. 779.
*Hepatic Extract Treatment of Toxemias of Pregnancy. J. L. Reycraft, Cleveland.—p. 786.
Postoperative Collapse of Lung (Atelectasis) in Gynecologic Cases. L. C. Scheffey, H. W. Jones and L. H. Clerf, Philadelphia.—p. 795.
*Sedimentation Test in Gynecology. Ruth Nystrom and E. M. Greisheimer, Minneapolis.—p. 806.
Early Decidua. R. W. TeLinde, Baltimore.—p. 809.
Mixed Tumor of Body of Uterus. S. A. Wolfe, New York.—p. 816.
Tuberculosis of Cervix: Case. E. L. Bishop, Atlanta, Ga.—p. 822.
*Direct Intra-Uterine Transmission of Tuberculosis from Mother to Baby: Probable Case. J. R. McCord, Atlanta, Ga.—p. 826.
Erythroblastosis with Congenital Universal Hydrops. W. C. Hueper, Philadelphia, and M. C. Mullen, Chicago.—p. 831.
Triplets with Papyraceous Twins: Case. F. M. Williams, Cincinnati.—p. 837.
Membraneous Cervicitis. Albert Holman and Albert Mathieu, Portland, Ore.—p. 839.
New Cannula for Performing Rubin and Lipiodol Examination. G. Mombach, Cincinnati.—p. 841.
Modified Speculum for Examination of Atrophic and Constricted Vagina After Radiation. R. Rosh, New York.—p. 843.
Folding Pessary. W. M. Findley, New York.—p. 844.

Ovarian Deficiency as Cause of Sterility.—Macomber says that ovarian deficiency means a failure of reproduction due to failure of ovulation. It can be caused by anything that seriously impairs ovarian circulation and hence leads to chronic passive congestion; by the formation, often due to the same cause, of cystic ovaries, and by certain constitutional and emotional factors that act on the ovarian function either directly or indirectly. In some of the latter conditions, as, for instance, in toxic goiter or in diabetes, the resulting sterility may be incidental to the primary cause; in others the sterility may be the only indication of disturbed function. At present, treatment is largely symptomatic; but the author awaits with firm faith the eventual production of specific agencies for cure.

Extraperitoneal Cesarean Section.—There were five deaths in the fifty-nine cases analyzed by Steele. There were three stillbirths and three neonatal deaths. He avers that extraperitoneal cesarean section carries a minimum risk of complicating peritonitis when employed in a patient presumably infected. It has all the advantage of a low double flap operation, plus the extraperitoneal feature, plus drainage. Immediate surgical risk is increased by the exhaustion of the patient and should be guarded against by all possible prophylactic measures. Rupture of the uterus in subsequent pregnancy and labor carries the same risk as that of the low double flap. Subsequent delivery by this method is unlikely. Bladder injuries of serious consequence are unlikely with increasing experience. The postoperative course, healing of the wound and stay in the hospital are satisfactory.

Pupillary Reactions of Pregnant and Nonpregnant Women.—Series of pregnant and nonpregnant women have been studied by Bercovitz to note the pupillary reactions of each group following the instillation of their own serum into the conjunctival sac. In 72 nonpregnant normally menstruating women, taken at all stages of the menstrual cycle, it was noted that there were no changes in the pupil as a result of instilling the patient's own serum into the conjunctival sac. In 26 nonpregnant women who had not menstruated for any reason whatever, whether endocrine disturbances, menopause or after pelvic operation, only 2 gave positive reactions to their own serum. Thus, in a total of 98 patients, only 2 gave positive reactions; the others were negative. Of 68 pregnant women it was found that in 80 per cent of the observations there was a change in the size of the pupil. This change was a dilatation, a contraction or, as in a few cases, only a marked activity of the pupil. None of these changes occurred in nonpregnant women. The pupillary reactions to epinephrine hydrochloride were studied in 54 pregnant women. In these it was found that 75.9 per cent reacted with changes in the size of the pupil. Of 98 nonpregnant women only 2 cases reacted positively when epinephrine hydrochloride was instilled into the conjunctival sac. Nineteen women who gave positive pupillary reactions ante partum were also studied post partum. The postpartum observations were made with serum and in each case the reaction was negative. Twenty observations were made with epinephrine; of these, 14 were entirely negative, 2 questionable and 4 positive. The pupillary reactions of 46 questionable cases have been studied. Of these, subsequent physical examinations revealed the fact that 20 were pregnant and 26 nonpregnant. Of the pregnant women, 62 per cent reacted positively to their own serum. In most of these cases it was impossible to make a diagnosis by physical examination at the first visit of the patient and the diagnosis was confirmed by subsequent physical examinations.

Treatment of Toxemias of Pregnancy with Hepatic Extract.—In a series of 50 cases which were considered sufficiently toxic to require some special form of treatment, Reycraft has used heparmone with varying results. Only 3 of the 50 patients would be considered mild cases. Twenty-seven were moderate, and 20 were severe. About 40 per cent of the cases showed little, if any, nephritis. In approximately 60 per cent, the objective symptoms were relieved and in 64 per cent of the cases the subjective symptoms were relieved. The one patient in this series who chanced to come to necropsy had had a large amount of heparmone and on two occasions was on the verge of eclampsia. There were no degenerative changes in the liver. Forty living babies were delivered in this series, and 7 of the stillbirths were premature babies, and most of these macerated. There were 8 living babies from the 10 patients with eclampsia. Only 4 of the cases were frankly hepatic in type, 2 were mixed, and the remaining 4 were nephritic. There was some relief of subjective symptoms in the nephritic cases after the administration of heparmone, but it had little influence on the objective symptoms. In all but one of the hepatic cases, relief was obtained both subjectively and objectively.

Sedimentation Test in Gynecology.—Nystrom and Greisheimer studied fifty-seven gynecologic patients by Cutler and Linzenmeier methods simultaneously. The two methods were in excellent agreement. The authors believe that the sedimentation test gives information not gained from white counts and temperature records. The lower the red count and hemoglobin content, the faster the sedimentation rate. A means of expressing the results found by one method in terms of the other is presented.

Direct Intra-Uterine Transmission of Tuberculosis from Mother to Baby.—The admission diagnosis in McCord's case was advanced pulmonary tuberculosis and a seven months' pregnancy. Five days after admission the woman gave birth to a premature baby who weighed 2,350 Gm.; labor was spontaneous and easy. The mother died twelve hours after delivery. The anatomic diagnosis at necropsy was generalized pulmonary and visceral tuberculosis; microscopic examination confirmed this. Both the Wassermann and the Kahn reactions were negative. The baby lived thirty days and at the time of its death weighed 1,795 Gm. and was 45 cm. in length. Tubercle bacilli were found both within and without the villi of the placenta and in the liver and spleen.

American Journal of Physical Therapy, Chicago

7: 139-176 (July) 1930

Bath Reactions in Spa Treatment. J. B. Burt, Buxton, England.—p. 139.
Eponyms in Electricity. H. Goodman, New York.—p. 144.
Present Position with Regard to Ionization. A. MacGregor, London, England.—p. 151.
Determination of Dental Focal Infection by Means of Radiograph. M. J. Hubeny, Chicago.—p. 157.
Biologic Value of Disease. A. E. Gibson, Los Angeles.—p. 160.
Meanderings in Old Mexico. F. S. O'Hara, Springfield, Ill.—p. 164.
One-Stage Tonsillectomy by Surgical Diathermy. H. J. Millstone, Chicago.—p. 169.
Removal of Tonsils by Tonsilthermy. T. F. Brady, Cleveland.—p. 172.

American Journal of Public Health, New York

20: 697-814 (July) 1930

Health Aspects of Summer Recreation. C. F. Dalton, Burlington, Vt.—p. 697.
Technical Supervision in Production of Highest Quality Milk. J. G. Hardenbergh, Plainsboro, N. J.—p. 705.
What is a Preventorium? H. E. Kleinschmidt, New York.—p. 715.
Care of Communicable Diseases in General Hospitals. J. Wallace, New York.—p. 722.
Administration of Swimming Pool Standards in Detroit. W. H. Cary, Jr., Detroit.—p. 727.
What Preparation Should the Public Health Nurse Have for Rural Work? I. M. Havey, Washington, D. C.—p. 734.
Bacteriologic Control in Commercial Canning. E. J. Cameron and H. M. Loomis, Washington, D. C.—p. 741.
Well Baby Clinic at Office of Family Physician and Pediatrician. E. J. Huenekens, Minneapolis.—p. 747.

American Review of Tuberculosis, Baltimore

22: 1-120 (July) 1930

*Exeresis of Phrenic Nerve in Treatment of Pulmonary Tuberculosis. R. W. Matson, Portland, Ore.—p. 1.
*Effect of Ultraviolet Irradiation on Tuberculous Peritonitis in Guinea-Pigs. M. M. Steinbach, A. F. Hess and M. Weinstock, New York.—p. 35.
*Effect of Oral Administration of Irradiated Ergosterol on Calcium Concentration of Blood Serum in Pulmonary Tuberculosis. Jacob Kaminsky and D. L. Davidson, Rutland, Mass.—p. 48.
*Irradiated Cod Liver Oil and Eosin in Pulmonary Tuberculosis. G. J. Hildebrand, Sheboygan, Wis.—p. 53.
Treatment of Early Case of Tuberculosis. M. J. Breuer, Lincoln, Neb.—p. 57.
*Tuberculosis of Female Pelvis. E. M. Jameson, Saranac Lake, N. Y.—p. 72.
Fibrinous Bronchitis Complicated by Massive Atelectasis: Case. R. N. Perlstein, Honolulu, Hawaii.—p. 82.
Aspects of Recorded and Resident Mortality from Tuberculosis in New York State in 1927 and 1928. J. V. De Porte, New York.—p. 87.
Chemical Changes Accompanying Growth of Bovine Tubercle Bacilli on Long's Synthetic Medium. A. G. Renfrew, K. M. Haring and T. B. Johnson, New Haven, Conn.—p. 116.

Exeresis of Phrenic Nerve in Treatment of Pulmonary Tuberculosis.—The late results of induced hemidiaphragmatic paralysis in 66 cases of the productive type of tuberculosis are discussed by Matson. A pneumothorax had been attempted in all cases and had failed because of the presence of pleuritic adhesions. In 34 cases a thoracoplasty was contraindicated because of the state of the contralateral lung. In 52 per cent of these cases the patient so improved that a thoracoplasty became unnecessary. In 32 cases a thoracoplasty was indicated, and in 28 per cent of these the patient so improved that a thoracoplasty became necessary. The sputum became negative for tubercle bacilli in 42 per cent of the 66 cases. The induction of a hemidiaphragmatic paralysis, either by exeresis or by radical resection of the phrenic nerve, is strongly recommended in all patients for whom a pneumothorax is indicated and adhesions prevent the introduction of gas. The operation is indicated (1) as an independent procedure in those cases in which a thoracoplasty is impossible, and (2) as a preliminary to every thoracoplasty.

Effect of Ultraviolet Irradiation on Tuberculous Peritonitis in Guinea-Pigs.—Steinbach et al. found that, when guinea-pigs are infected with mildly virulent tubercle bacilli intraperitoneally, they develop extensive tuberculous disease even though subsequently treated with ultraviolet irradiation. In their experiments, comprising three series of tests, the irradiated animals developed tuberculosis to fully the same degree as those which had not been treated with ultraviolet rays, and in some instances showed more extensive disease than did the controls.

Effect of Oral Administration of Viosterol on Calcium Concentration of Blood Serum in Pulmonary Tuberculosis.—The results obtained by Kaminsky and Davidson in ten cases show that the administration of viosterol is followed by an increase in the serum-calcium concentration, and in some of the cases the higher calcium level shows a tendency to persist for some time after the drug is discontinued.

Irradiated Cod Liver Oil and Eosin in Pulmonary Tuberculosis.—Hildebrand reports his own case. An old tuberculous process, quiescent for seven years, became active. Hemorrhages occurred on three or four occasions. Cough was troublesome and the expectoration rather profuse. Cod liver oil, irradiated for two hours under the quartz lamp, was taken in tablespoonful doses before meals. Eosin, gr. ½, in capsule, was taken after meals. This was continued until 1 quart of oil had been consumed. This was in addition to rest, diet and fresh air usually prescribed for tuberculosis. Cough and expectoration ceased entirely and rather abruptly about three weeks later. Up to the present time there has been no renewed activity.

Tuberculosis of Female Pelvis.—Jameson asserts that tuberculous pelvic disease occurs in about 8 per cent of women with pulmonary tuberculosis. The diagnosis can be made with a reasonable degree of certainty on the history, symptoms and observations on careful pelvic and abdominal examination. The roentgen rays seem to offer a feasible conservative method of treating tuberculous lesions of the uterus and adnexa in women with pulmonary tuberculosis. In patients too sick for even this method of treatment, conservative treatment with hot douches, baking and general medical measures offers relief in a majority of cases. Surgery should be restricted to patients not relieved by other methods.

Annals of Surgery, Philadelphia

92: 1-160 (July) 1930

*Causes of Postoperative Deaths. G. Petrén, Lund, Sweden.—p. 1.
*Pulsating Exophthalmos. J. M. Hanford and J. M. Wheeler, New York.—p. 8.
*Results of Treatment by Autogenous Gland Filtrate in Hodgkin's Disease. E. M. Hanrahan, Jr., Baltimore.—p. 23.
Harelip and Cleft Palate: 184 Cases. C. G. Burdick, New York.—p. 35.
Plastic Restoration of Esophagus: Case. L. Dengel, Lodz, Poland.—p. 51.
Thyroglossal Cysts and Sinuses. H. M. Clute and R. B. Cattell, Boston.—p. 57.
Multilocular Cyst of Spleen Produced by Infarcts. W. Dobrzaniecki, Lwow, Poland.—p. 67.
*Imperforate Anus. O. H. Wangensteen and C. O. Rice, Minneapolis.—p. 77.
*Primary Closure in Prostatectomy. T. E. Gibson, San Francisco.—p. 82.
Hereditary Deforming Chondrodysplasia or Multiple Exostoses. K. Hale, Wilmington, Ohio.—p. 92.

Causes of Postoperative Deaths.—Petrén analyzed the causes of death in 79 cases of brain tumor with 20 deaths; 199 strumectomies for exophthalmic goiter with 14 deaths; 457 operations for gallstone with 54 deaths; 2,192 cases of appendicitis with 75 deaths; 266 kidney and ureter operations with 24 deaths, and 170 prostatectomies for prostate hypertrophy with 22 deaths. Almost half (mostly 44 to 46 per cent) of all the patients that succumbed after operation died from the primary disease or the lesion itself or some complication of it. For these deaths surgery can hardly ever be held responsible. Out of the other half more than one half, i. e., more than one fourth (mostly 25 to 29 per cent) of the operative cases ending fatally from pulmonary complications: pneumonia and pulmonary embolism. The remaining cases, i. e., fully one fourth of all the operative deaths (mostly 25 to 30 per cent), fall more immediately or directly to the account of surgery, having been due to inaccurate or debatable indications or to faulty technic or incomplete operation or to some special intercurrent operative complication.

Pulsating Exophthalmos.—A case of pulsating exophthalmos is reported by Hanford and Wheeler, a traumatic case without evidence of arteriosclerosis, caused probably by arteriovenous aneurysm between the internal carotid artery and the cavernous sinus. The orbital veins were not appreciably engorged. An apparent cure has resulted after bilateral common carotid artery occlusion and after enucleation of the affected eye for persistent acute glaucoma.

Results of Treatment by Autogenous Gland Filtrate in Hodgkin's Disease.—Nine patients who had Hodgkin's disease were treated by Hanrahan by the immunological method suggested by Wallhauser and Whitehead. This treatment consists in the frequent administration of small doses of a diluted filtrate, the extract of affected lymph nodes. Five patients died of the disease, three of whom had transitory remissions. One seemed unaffected by the treatment and returned to irradiation. One seemed slightly improved for a time but retrogressed and was irradiated. One was apparently unaffected after ten weeks and another after six weeks.

Imperforate Anus.—Wangensteen and Rice report a case which shows that the employment of the flat roentgen film of the abdomen with the infant held in the inverted posture serves as a reliable method of determining the surgical approach in imperforate anus.

Primary Closure in Prostatectomy.—Gibson shows that primary closure and primary healing of perineal prostatectomy wounds can be successfully accomplished in a fair percentage of cases, contributing to the greater comfort of the patient after operation and shortening convalescence.

Archives of Neurology & Psychiatry, Chicago

24: 1-226 (July) 1930

Superior Olivary Nucleus. J. W. Papez, Ithaca, N. Y.—p. 1.
Optic Nystagmus: III. Characteristics of Slow Phase. R. Dodge, R. C. Travis and J. C. Fox, Jr., New Haven, Conn.—p. 21.
*Principal Sinistral Types. C. Quinan, San Francisco.—p. 35.
Effect of Alcohol on Patellar Tendon Reflex Time in Dogs. J. M. Dorsey, Ann Arbor, Mich., and L. E. Travis, Iowa City.—p. 48.
*Myatonia Congenita. E. S. Gurdjian, Ann Arbor, Mich.—p. 52.
Niemann-Pick's Disease: Case. G. B. Hassin, Chicago.—p. 61.
Hyaline Degeneration in Dementia Paralytica. Abner Wolf, Jersey City, N. J.—p. 71.
*Subarachnoid Hemorrhage as Clinical Complication of Neurosyphilis. I. J. Sands, New York.—p. 85.
Measurements of Cerebral and Cerebellar Surfaces: IX. Measurement of Cortical Areas in Cat, Dog and Monkey. J. J. Michaels, Detroit and W. M. Kraus, New York.—p. 94.
Radiogenic Microcephaly. Leopold Goldstein, Philadelphia.—p. 102.
Personality Factors in Alcoholism. H. H. Hart, New York.—p. 116.
Diagnosis of Racemose Cysticercosis During Life: Changes in Cerebrospinal Fluid. A. E. Kulkov, Moscow, Russia.—p. 135.
Lilliputian Hallucinations Following Use of Caffeine Citrate. Philip Work, Denver.—p. 143.
Support for Supplementary Treatment of Facial Paralysis. A. R. Vonderahe, Cincinnati.—p. 146.
Progress in Psychiatry: II. Active Work Therapy of Dr. Simon. Frederic Wertham, Baltimore.—p. 150.

Principal Sinistral Types.—Of 1,000 university students examined by Quinan with reference to handedness and eyedness, 704 were right-handed and right-eyed; 185 were right-handed and left-eyed; 40 were left-handed and left-eyed; 36 were left-handed and right-eyed; 35 are classified as ambilaterals and other types. Nearly the same percentage of sinistrals was found in a study of 317 Chinese school children. There seems to be a marked tendency for sinistrals to concentrate in certain of the esthetic vocations. Of the basis of data collected from 815 university students, it can be stated that sinistrals are definitely more musical in their tastes than dextrals. In a survey of 693 neuropsychiatric patients, it was found that in dementia praecox and in most other forms of mental disease the percentage of sinistrals was 30.4, while in a mixed group of persons with constitutional psychopathic states the average value was 54.1 per cent. It is suggested that sinistrals, especially those of the RL type, are apt to show signs of constitutional instability.

Myatonia Congenita.—A family of six children is described by Gurdjian in which three cases of myatonia congenita occurred. The most important pathologic change found in one case coming to necropsy was involvement of the neuromuscular system (anterior horn cells, anterior nerve roots and striated muscle). These changes were particularly marked in the lower part of the spinal cord and the lower extremities. Such universal involvement of both peripheral and central factors suggests the possibility of the operation of a toxic agent.

Subarachnoid Hemorrhage as Clinical Complication of Neurosyphilis.—Two cases are reported by Sands. Subarachnoid hemorrhage complicating neurosyphilis is a clinical entity probably caused by rupture of diseased pial capillaries or vessels. The underlying pathologic process is syphilitic meningitis demonstrated by thickened leptomeninges, infiltration with lymphocytes and plasma cells, marked endarteritis of the fine capillaries of the pia and hemorrhage in the subarachnoid space. The brain tissue proper shows marked glial reaction and syphilitic endarteritic processes in the capillaries. The clinical picture presented is that of subarachnoid hemorrhage plus the presence of positive serologic tests.

Archives of Surgery, Chicago

21: 1-184 (July) 1930

*Experimental Cardiac Valvular Disease in Dogs, and Subacute and Chronic Cardiac Valvular Disease in Man. J. H. Powers, Boston.—p. 1.
Hereditary Deforming Chondrodysplasia: Case. O. R. Hyndman, Iowa City.—p. 12.
*Syndactylism: Coherence of Fingers or Toes. J. S. Davis and W. J. German, Baltimore.—p. 32.
*Surgical Wounds in Human Beings. S. W. Hartwell, Muskegon, Mich.—p. 76.
*Secondary or Late Perforation of Small Intestine from Trauma. W. D. Inlow, Shelbyville, Ind.—p. 97.
*Problem of Cancer of Stomach. H. C. Saltzstein and D. J. Sandweiss, Detroit.—p. 113.
Chronic Subdural Hematoma. Franklin Jelsma, Louisville, Ky.—p. 128.
Tumors of Giant Cell Group. C. F. Geschickter and M. M. Copeland, Baltimore.—p. 145.
*Fetus Retention for Twenty-Six Months: Case. H. A. Lichtwardt, Meshed, Persia.—p. 157.
Review of Urologic Surgery. A. J. Scholl and A. A. Kutzman, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; G. S. Foulds, Toronto, Canada, and Jean Verbrugge, Antwerp, Belgium.—p. 162.

Experimental Cardiac Valvular Disease in Dogs, and Subacute and Chronic Cardiac Valvular Disease in Man.—The vegetations of acute endocarditis produced experimentally by Powers in dogs by electrosurgical traumatization of the mitral valve and subsequent intravenous inoculation with cultures of *Streptococcus viridans* are similar to the vegetations of subacute bacterial endocarditis in man. In some cases it is possible to demonstrate microscopically clumps of bacteria included within the thrombi. Some of the larger areas of necrosis which occur in the experimental lesions may be attributed to the coagulation of tissue produced by the operative procedure. Heavy infiltration of inflammatory cells occurs in both types. In the more chronic experimental lesions, repair occurs by avascular cicatrization; in the human lesions, vascular organization is usually more prominent. The human hearts show more shortening of the chordae tendineae and a more diffuse, complete involvement of all the segments of the valve. In the favorable canine lesions which go on to complete healing, fibrocartilage is laid down. A thickened, fibrous valve is produced which is somewhat comparable to mitral stenosis of rheumatic origin in man.

Syndactylism: Coherence of Fingers or Toes.—Davis and German trace this deformity from its origin to its correction by the methods that have been most satisfactory in their hands.

Surgical Wounds in Human Beings.—Hartwell made a histologic study of complete, transverse sections of surgical wounds in human beings, both clean and infected, in all stages of healing. Eighty-nine wounds, from 1 day to 9 years old, were studied. He concludes that: Fascia and dermis do not take any active part in the healing of surgical wounds in human beings. Fat is the site and the basis of the production of new fibrous material in wounds of human beings. Macrophages are the true fibroblasts of wounds in human beings. New fibrous scar tissue is formed at the expense of the cells which produce it. Given the proper chemical material in the healing zone, the physical forces in that zone determine the rate of deposit of fibrous material and the organization of the fibers into a functioning tissue. Macrophages are derived from lymphocytes of the blood which develop rapidly by the ingestion of fat. The fundamental healing process is the same in both clean and infected wounds. The histologic picture of fibrous healing in human beings is different from that in animals. The mechanics of closure of wounds determine the appearance of the scar on the surface and the occurrence of postoperative hernia.

Secondary or Late Perforation of Small Intestine from Trauma.—Six cases of secondary or late perforation of the small intestine from trauma are reported by Inlow, two personal, and four illustrative ones from the literature. On the basis of these reports, a clinical discussion of the condition is given.

Problem of Cancer of Stomach.—Saltzstein and Sandweiss analyzed 365 consecutive deaths from cancer of the stomach. Perhaps 3 per cent of the total number of persons who have died from gastric cancer have had the growth resected and recovered from the operation—have had the chance of cure that operative recovery from radical resection represents. Of 287 fatal cancers of the stomach, 24.7 per cent were preceded by long continued indigestion; 75.3 per cent started suddenly from previous good health. Of those which started suddenly from previous good health, 69 per cent started with symptoms which, though mild, were distinctly referable to a pathologic disturbance in the upper part of the abdomen. The chief problem is not the recognition of symptoms but the arousal of suspicion that they may be of serious import. Cancers that start with atypical symptoms are more apt to be in the left half, the nonresectable portions, of the stomach than toward the pylorus. One third of the 25 per cent of these patients who had had long continued indigestion had been given the diagnosis "typical ulcer history"; one half of these had been under medical management for ulcer. Ten per cent of the remaining patients whose cancers started from preceding good health were noted as having a history typical of ulcer. Twenty-six per cent of the patients who had not been in hospitals had had roentgen examinations. There is a definite though small error in roentgenologic diagnosis of cancer even when the growth is well developed. With a mildly but definitely suggestive clinical history of a malignant gastric condition, a negative roentgen picture should not entirely rule out cancer. The problem as regards treatment is doing more gastric resections and doing them with a lower postoperative mortality. Concerning the deaths following gastric resections for carcinoma, it may be said, in a rough clinical interpretation, that 20 per cent were thought to be due to pulmonary complications; one third were due to circulatory failure, a small number of these cardiac failure per se, the larger proportion shock due to hemorrhage or toxemia from retention and dehydration; and 40 per cent were due to peritonitis.

Retention of Fetus for Twenty-Six Months.—The case reported by Lichtwardt is that of retention of the skeleton of an 8 months old fetus for a period of more than two years, during which two fistulas were formed between the fundus of the uterus and the transverse colon, and finally a fistula between the uterus and the anterior abdominal wall. The fetal bones were removed, but it was found necessary to do a partial hysterectomy, and the fundus was used to form the passage between the two openings of the transverse colon.

Colorado Medicine, Denver

27: 217-274 (July) 1930

*Primary Pneumococcic Peritonitis in Childhood. E. Friedman, Denver.—p. 219.
Acquired Massive Atelectasis of Lung. C. T. Burnett, Denver.—p. 226.
Air Embolism as Complication in Artificial Pneumothorax Therapy. E. H. Bruns, Aurora.—p. 237.
Lipiodol: Place in Modern Diagnosis of Nasal Sinus Pathology. Harry Whitaker, Denver.—p. 245.
*Amebic Dysentery. A. J. Chisholm, Denver.—p. 250.
Proper Gastro-Intestinal Examination. N. B. Newcomer, Elizabeth Newcomer and C. A. Conyers, Denver.—p. 257.

Primary Pneumococcic Peritonitis in Childhood.—All three of Friedman's patients were girls, aged from 2 to 5 years. The onset was sudden in all three cases; one showed a premonitory indisposition. The outstanding symptoms were high fever, prostration and stupor. Vomiting was absent in one, appeared early and remained persistent in the second, and was a late but a most distressing manifestation in the youngest. Diarrhea was conspicuous in one, and constipation in one. Bloody stools were not encountered. Abdominal pain and tenderness were present in all three, but only moderate in degree. Distention was found in all but was pronounced in only one. Rigidity was detected in two; in the youngest the abdomen was immobile. All three were dyspneic and one cyanotic. Cough was not in evidence. The throat was found inflamed only in the youngest, and the inflammation was doubtless due to incessant vomiting. Vaginal discharge, slight in degree, was present in one. The white count and polymorphonuclears were, respectively, 26,200 and 92 per cent, 6,600 and 72 per cent, and 24,200 and 95 per cent. A blood culture performed in one patient proved negative. All three patients were operated on. Operation revealed a variable amount of odorless fluid seropurulent in one, and thick and greenish yellow in two, with thick, fibrinous flakes in two. Adhesions were found in the youngest, coating the spleen. The peritoneal surface was moderately congested. The intestines were distended in all three. The genitalia were found involved in the oldest. All three patients died. Necropsy was permitted in two, disclosing in both cases and, in addition to the foregoing observations, pneumonic consolidation at the bases of the lungs.

Amebic Dysentery.—Twenty-four cases of amebic infection in man are reported by Chisholm as encountered in the state of Colorado since 1926. Most of these patients had lived practically all of their lives in the temperate zone; only one had ever visited the tropics.

Johns Hopkins Hospital Bulletin, Baltimore

47: 1-60 (July) 1930

*Thyroid Heart, Transitory Condition. H. M. Thomas, Jr., Baltimore.—p. 1.
Histologic Changes in Nerve Cells Following Injury. O. R. Langworthy, Baltimore.—p. 11.
*Menopause: III. Sensitiveness of Women at Menopause to Epinephrine. W. K. Myers and J. T. King, Jr., Baltimore.—p. 22.
Hydrolysis of Sodium Hippurate by Various Bacteria. I. Gilbert and M. Frobisher, Jr., Baltimore.—p. 55.

Thyroid Heart, Transitory Condition.—Two quite similar cases of exophthalmic goiter with severe myocardial insufficiency are reported by Thomas. One patient died after operation on the thyroid gland, while the other achieved complete clinical recovery. The second case, an extreme form of myocardial insufficiency in thyroid heart disease with auricular fibrillation of more than a year's duration, which went on to subsequent complete recovery, demonstrated clearly that even the most severe intoxication from hyperthyroidism need not produce permanent functional cardiac damage. In the first case, although death resulted from heart failure, there was no evidence, pathologically, of significant myocardial damage. These cases and many others place the burden of proof on those who claim that permanent myocardial damage results from hyperthyroidism.

Sensitiveness of Women to Epinephrine at Menopause.—Myers and King made a study of twenty-four women in or about the menopause to determine their sensitivity to epinephrine, in conjunction with a study of the menopause syndrome. They found that in certain women the menopause brings about a disturbance which causes them to give a "positive" reaction to epinephrine: this suggests that a hypersensitivity of the sympathetic nervous system may exist in a considerable proportion of women who suffer from symptoms of the menopause. The distressing symptoms of the menopause may be the consequence of an increased irritability of the sympathetic nervous system. There is no evidence that the positive reaction to epinephrine at the menopause is due to hyperthyroidism; however, the type of response obtained in women at the menopause resembles more closely the reaction of hyperthyroid individuals than that of men with "irritable heart." The result of their observations of the effect of epinephrine by subcutaneous injection on women at the menopause are similar to those reported by Hannan. In Hannan's series there was a sharp difference as regards sensitivity to epinephrine between women at the menopause who had flushes and those who had none. In this series there were a number of exceptions to this rule.

Journal of Experimental Medicine, Baltimore

52: 1-143 (July 1) 1930

Reactions of Rabbits to Nonhemolytic Streptococci: III. Modes of Sensitization. C. L. Derick, C. H. Hitchcock and H. F. Swift, Baltimore.—p. 1.
Blood Cytology of Rabbit: Consecutive Erythrocyte and Hemoglobin Observations on Groups of Normal Rabbits. Louise Pearce and A. E. Casey, New York.—p. 23.
Tooth Growth in Experimental Scurvy. Gilbert Dalldorf and Celia Zall, New York.—p. 57.
Blood Vessels in Membranes of Chick Embryos: I. Absence of Nerves in Vascular Membrane. Fritz Lange, W. Ehrich and A. E. Cohn, Baltimore.—p. 65.
Id.: II. Reactions of Blood Vessels in Vascular Membranes. Fritz Lange, Baltimore.—p. 73.
Id.: III. Anatomy and Physiology of Blood Vessels at Different Ages. A. E. Cohn and Fritz Lange, Baltimore.—p. 81.

Id.: IV. Modification of Irritability of Blood Vessels. Fritz Lange, Baltimore.—p. 89.
Enhanced Passive Immunity to Streptococcus Infection in Rabbits. F. P. Gay and A. R. Clark, New York.—p. 95.
Blood Chemistry of Acute Trypanosome Infection. R. W. Linton, New York.—p. 103.
Survival of Yellow Fever Virus in Cultures. P. A. Lewis, Bahia, Brazil.—p. 113.
Bartonella Muris Anemia of Albino Rats: I. Trypanosoma Lewisi Infection in Normal Albino Rats Associated with Bartonella Muris Anemia: II. Latent Infection in Adult Normal Rats. J. Marmorston-Gottesman and David Perla, New York.—p. 121.
Id. III. Protective Effect of Autoplastic Splenic Transplants on Bartonella Muris Anemia of Splenectomized Rats. David Perla and J. Marmorston-Gottesman, New York.—p. 131.

Journal of Pharmacol. & Exper. Therap., Baltimore

39: 129-244 (June) 1930

Suitability of Amytal as Anesthetic for Laboratory Animals. R. C. Garry, Glasgow, Scotland.—p. 129.
Continuous-Recording Pens. J. H. Thompson and A. T. Wilson, London.—p. 137.
Apparatus for Continuously Recording Human Blood Pressure. J. H. Thomson, London.—p. 141.
Influence of Drugs on Transmission of Arsenic into Aqueous Humor. A. C. Krause, A. M. Yudkin, M. A. Stevens, W. W. Bunnell and D. T. Hughson, New Haven, Conn.—p. 153.
Comparison of Premedication Values of Several Barbituric Acid Derivatives in Relation to Nitrous Oxide Anesthesia. M. F. Stormont, I. Lampe and O. W. Barlow, Cleveland.—p. 165.
Duration of Action of Drugs: I. Analgesics and Hypnotics. Theodore Koppanyi and Abraham Lieberson, New York.—p. 177.
Id.: II. Mydriatic Actions of Epinephrine and Atropine. Theodore Koppanyi and Abraham Lieberson, New York.—p. 187.
Experimental and Clinical Studies of Ergotamine: III. Effect of Ergotamine on Oxygen Consumption of Normal, Trained Dogs. J. B. Youmans and W. H. Trimble, Nashville, Tenn.—p. 201.
*Absorption of Drugs from Right Ventricular Cavity. C. J. Wiggers, Cleveland.—p. 209.
Estimation of Digitalis by Pigeon-Emesis and Other Methods. J. H. Burn, London.—p. 221.
Detoxification of Nicotine by Ultraviolet Rays. A. J. Pacini and Hugh McGuigan, Chicago.—p. 241.

Absorption of Drugs from Right Ventricular Cavity.—Pharmacologically, the absorption of drugs from the interior of the right ventricle and their transportation to the left ventricle is demonstrated by Wiggers. Physiologically, the importance of the thebesian communications is extended; through them substances may be absorbed and distributed to various portions of the two ventricles, not only when the coronary supply fails or is deficient, but also while a natural coronary pressure exists. Therapeutically, Wiggers says that intracardiac injections not only are justifiable when other means of medication are hopeless: they even offer considerable promise of being useful in various forms of circulatory failure.

Kentucky Medical Journal, Bowling Green

28: 313-360 (July) 1930

Neurologic Manifestation and Clinical Course of Epidemic Cerebrospinal Meningitis. J. J. Moren, Louisville.—p. 321.
Serum Treatment of Epidemic Meningitis. Morris Flexner, Louisville.—p. 323.
Pathology and Laboratory Diagnosis of Meningococcic Meningitis. A. J. Miller, Louisville.—p. 325.
Surgical Aspects of Meningitis. W. J. Gardner, Cleveland.—p. 326.
Specialty of Dermatology. W. J. Young, Louisville.—p. 336.
Phases of Nervous in Relation to Health and Happiness. Marvin Coffman, Owensboro.—p. 342.
Consultations and Consultants. J. K. Freeman, Louisville.—p. 345.
Treatment of Epilepsy. J. J. Moren, Louisville.—p. 347.
Protein Sensitization: Two Cases. F. G. Speidel, Louisville.—p. 348.
Ruptured Appendix in Scrotum of Infant: Case. C. M. Edelen, Louisville.—p. 349.

Michigan State M. Soc. Journal, Grand Rapids

29: 483-544 (July) 1930

Physiologic Considerations in Treatment of Chronic Constipation. W. A. Bastedo, New York.—p. 483.
Corns, Hammer-Toes and Bunions. J. G. R. Manwaring, Flint.—p. 497.
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Southern Medical Journal, Birmingham, Ala.

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*Clinical and Pathologic Study of Postmenopausal Bleeding. R. W. TeLinde, Baltimore.—p. 571.
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*Cystoscopic Appearance of Various Types of Cystoceles. R. E. Van Duzen, Dallas, Texas.—p. 580.
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*Indications for Laminectomy in Spinal Injuries. C. E. Dowman, Atlanta, Ga.—p. 607.
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*Food Content with Relation to Density and Composition of Stone in Upper Urinary Tract. Owsley Grant and Virgil Simpson, Louisville, Ky.—p. 628.
Complications of Otitic Sepsis: Case Reports. S. B. Marks, Lexington, Ky.—p. 636.
*Thrombosis of Sigmoid Sinus and Internal Jugular Vein: Tobey-Ayer Test. Cuthbert Tunstall, University, Va.—p. 639.
*Oxygen Therapy in Epilepsy. Pat Murphey, Little Rock, Ark.—p. 647.
Conduct of Labor in Pelvic Deformities. L. A. Wilson, Charleston, S. C.—p. 653.
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Gastric Carcinoma with Esophageal Obstruction. C. L. Perry, Miami, Fla.—p. 665.
Whole Time Medicine. R. K. Flannagan, Richmond, Va.—p. 666.
Dr. J. Marion Sims. C. K. Weil, Montgomery, Ala.—p. 670.

Clinical and Pathologic Study of Postmenopausal Bleeding.—In a series of 179 cases of postmenopausal bleeding analyzed by TeLinde, a malignant condition was found somewhere in the generative organs in 60 per cent and relatively benign conditions in 40 per cent. The most common site of the malignant growth was the uterus (55.9 per cent). He says that when speculum examination of the vagina or curettage of the uterus fails to explain the cause of bleeding satisfactorily, the question of neoplasm of the ovary should be borne in mind; and even though no evidence of ovarian neoplasm can be discovered on palpation at the time of the curettage, as the presence of a small tumor is quite possible, the patient should be subjected to reexamination frequently and, as soon as any increase in size of an ovary is made out, she should be subjected to a laparotomy, provided her age or other physical condition does not present any serious contraindication. If curettage reveals hyperplasia of the endometrium several years after the menopause, the presence of follicular oophoroma or a granulosal cell tumor of the ovary is probable, and the patient should be kept under observation and subjected to laparotomy as soon as palpation shows any enlargement of the ovary.

Cystoscopic Appearance of Various Types of Cystoceles.—Van Duzen asserts that in cystocele there is not only separation of the vesical fascia but often also injury of the trigon muscle. The division of the trigon muscle is seldom complete and the remaining muscles might hypertrophy sufficiently to open the sphincter normally if they were not allowed to become stretched by increasing cystocele formation. All medical measures failing, he believes that an early repair before the remaining fibers are destroyed by stretching is highly desirable. If the cystocele is posterior to the trigon the result after suturing the vesical fascia will be good, but if it is anterior to Mercier's bar or if both types are present the result depends on the power of the remaining trigonal muscle fibers to hypertrophy and open the sphincter normally. Cases with cystoceles anterior to Mercier's bar are prone to recur because of the increased tension necessary to open the sphincter. Care should be exercised not to overcorrect the cystocele, as this is often worse than the original condition.

Epiphyseal Separation Due to Muscular Action.—One of Meyer's cases was a complete separation of the epiphysis of the right lesser trochanter, with upward displacement, caused by high jumping. In the second case the anterior superior spine had been detached from its mooring while the patient was running in a foot race. In both cases plaster casts were applied and a complete functional recovery was obtained.

Indications for Laminectomy in Spinal Injuries.—Dowman is convinced that the degree of cord damage in spinal injuries cannot be estimated accurately by a neurologic examination alone. The roentgen evidence of dislocation is not in itself proof of spinal compression. The jugular compression test as described by Queckenstedt is the most reliable method of determining the presence or absence of pressure on the cord. Laminectomy should be performed only in those cases of spinal injury in which pressure on the spinal cord has been thus demonstrated.

Food Content with Relation to Density and Composition of Stone in Upper Urinary Tract.—Grant and Simpson have classified twenty-nine renal and ureteral calculi according to their density and chemical composition. Calcium was present in 85 per cent; ammonium in 62 per cent; magnesium and phosphate in 51 per cent; oxalate in 24 per cent; urates chiefly in 20 per cent; carbonate in 13 per cent and cystine in 6 per cent. Of this number of examined stones, fifteen were either recurrences or multiple stones. It is stressed that, in the care of a patient who has uric acid showers or has had actual uric acid stone formation, diet becomes a matter of some importance. Surgery may remove the initial stone or stones, but the conditions necessary for subsequent reproduction may again obtain. A suitable diet may keep the uric acid content of the urine below the supersaturation point, thus preventing the completion of the circle of factors considered essential for stone formation. A purine free diet is not practicable, but a low purine diet is. A proper diet is of equal importance in preventing the formation of other stones.

Thrombosis of Sigmoid Sinus and Internal Jugular Vein: Tobey-Ayer Test.—Tunstall presents the results of routine lumbar punctures done on patients with no history indicating any sinus or jugular thrombosis. Most of them were syphilitic. Within the limitations set forth by its authors in patients without an obliterating thrombus of the sigmoid sinus or internal jugular vein, he says the Tobey-Ayer test gives negative results. In patients with obliterating thrombosis the test is often of supreme value. A mural thrombus may give negative results. Hence, if the other evidence in favor of thrombophlebitis is strong, operation should not be too long deferred. The test is wholly inconclusive in crying children. When the occlusion of the sigmoid sinus is of long duration and the collateral circulation has become established there is a slow rise of cerebrospinal fluid pressure when the jugular on the affected side is compressed, but probably not as great a rise as occurs when the opposite jugular vein is compressed.

Oxygen Therapy in Epilepsy.—Murphey reports twenty cases in which he administers oxygen to relieve the spasm. In eight cases, as soon as the patient had the epileptic attack Murphey applied the oxygen mask to his nose and mouth so that he breathed the gas in as soon as he took a breath. Relaxation began as soon as a breath was taken and at the end of two or three inhalations the man was completely relaxed and the cyanosis gone. Also the drowsy period that usually follows such attacks was materially shortened. In some instances, however, several seconds elapsed between the time that the mask was applied and the time the man took a breath, as a result of his convulsive state. In an effort to offset this loss of time, he decided to give the oxygen intravenously. Accordingly, he injected pure oxygen directly into the veins of twelve patients. The gas was given 30 cc. at a time and the patients received a total dosage of from 90 to 465 cc. No bad effects at all were seen in any of the cases. One man was made drunk and reeled as he walked for a few minutes. Six other men developed coughs after taking from 120 to 445 cc., but this subsided shortly after the oxygen was stopped. This seemed to prove that the oxygen went through the heart into the lungs and the irritation there set up the cough. To substantiate this, roentgen pictures were made of two men after oxygen had been injected into their veins. The oxygen could be traced from the point of introduction to the shoulder and there was lost. It appeared on the film as a narrow radiolucent streak not more than 2 mm. in width at any point.

Surgery, Gynecology & Obstetrics, Chicago

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*Effects of Depressed Fractures of Skull. H. C. Naffziger and M. A. Glaser, San Francisco.—p. 17.
*Subdural Hemorrhage Associated with Tentorial Splitting in New-Born. W. H. Chase, Montreal, Que.—p. 31.
Senility of Bone and Relation to Bone Repair. H. E. Radasch, Philadelphia.—p. 42.
*Pyeloscopy—Radioscopy of Kidney Pelvis. J. L. Jona and H. Flecker, Melbourne, Australia.—p. 50.
Lipiodol Pelvic Cysts. A. F. Lash, Chicago.—p. 55.
Urethral Caruncle in Female: Twenty-Three Cases. C. T. Olcott, New York.—p. 61.
*Brain Flap: Relation to Intracranial Pressure. R. St. A. Heathcote and A. K. Henry, Cairo, Egypt.—p. 65.
*Changes in Spinal Fluid Following Injection for Spinal Anesthesia. A. H. Iason, M. Lederer and M. Steiner, New York.—p. 76.
Mirault Operation for Single Harelip. V. P. Blair and J. B. Brown, St. Louis.—p. 81.
Chrondromatosis of Joint Capsule. St. Kartal, Zurich, Switzerland.—p. 99.
Duodenal Niche: Criterion in Healing of Duodenal Ulcer. J. Buckstein, New York.—p. 109.
Intrabronchial Drainage. H. Brunn and W. B. Faulkner, Jr., San Francisco.—p. 115.
Primary Carcinoma of Fallopian Tubes. R. E. Watkins and W. M. Wilson, Portland, Ore.—p. 125.
Pathologic Fractures. R. MacDonald, Chicago.—p. 131.
Indirect Inguinal Hernia. F. S. Wetherell, Syracuse, N. Y.—p. 133.

Effects of Depressed Fractures of Skull.—Studies made by Naffziger and Glaser of the effects of simple, nonpenetrating depressed fractures of the skull in rabbits have shown that: 1. The changes in the brain are caused by the force producing the injury rather than the depression of the bone. 2. The pathologic changes in the brain appear more marked in the early and in the late stages than during the intermediate period and are chiefly subcortical. 3. Depressions of moderate size do not cause pathologic changes in the underlying meninges and brain. 4. After depressed areas were made by slow localized compression or by the introduction of extradural foreign bodies, there was no production of pachymeningitis, leptomeningitis, adhesions, softening or cysts.

Subdural Hemorrhage Associated with Tentorial Splitting in New-Born.—Based on observations from an analysis of thirty-two cases of subdural hemorrhage with tentorial splitting, Chase concludes that: 1. Subdural hemorrhage is the important intracranial lesion in most cases of birth trauma. 2. There is nothing to indicate that intradural hemorrhage or tentorial splits per se are of noteworthy clinical significance. 3. The subdural hemorrhage is largely supratentorial and often bilateral. It is usually due to a stretching and rupturing of the small tributaries of the great cerebral vein near its junction with the straight sinus. 4. Tentorial splits are relatively more numerous in the premature than in the full term infant, partly because of the greater immaturity of fibers of the dural septums in prematurity. 5. The causes of prolonged and difficult labor

may be as important in these intracranial lesions as the operative intervention. 6. Signs of asphyxiation were constant, but definite signs of intracranial irritation were recorded in only a small minority of cases.

Pyeloscopy—Radioscopy of Kidney Pelvis.—Jona and Flecker found that pyeloscopy gives a ready method of determining the pathologic condition in cases of kidney pain when lithiasis is absent. In many cases of pyelitis it was possible to determine by direct observation which drug gives the best contraction of the renal pelvis and the patient is kept on this for some time. As a general rule, physostigmine and morphine have been found the best. Patients who had wearily dragged on for years suffering from backache with periodic exacerbations of headache, sweating and rise in body temperature have derived immediate relief from strychnine, physostigmine and morphine, either alone or combined, when citrates and the usually recognized treatments have failed. The cases of antiperistalsis explain how the pelvis of the kidney may be infected from an infected bladder. The pain accompanying these antiperistaltic contractions or the antidromic passage of urine suggests this as a possible cause of the cases of renal and ureteral colic simulating stone when no stone is demonstrable. In cases of hydronephrosis in which the pelvis contracts well and vigorously, obviously the treatment is plication, whereas, if the pelvis does not contract and is simply an inert atonic sac, nephrectomy is obviously indicated. In early malignant conditions involving perhaps only a single calix, the absence of contraction of one part of the pelvis associated with "idiopathic" hematuria of renal origin would justify the performing of an exploratory operation.

Brain Flap: Relation to Intracranial Pressure.—A further study is presented by Heathcote and Henry of the large respiratory excursions of the exposed brain (and dura) which the authors have termed brain flap. A case of prolonged brain flap in man, associated with great reduction of intracranial pressure, is described. A series of experiments designed to show the relationship between brain flap and the intracranial pressure is described and discussed. It is proved (*a*) that brain flap is inhibited by factors which raise intracranial pressure and (*b*) that it is directly associated with factors which lower intracranial pressure. It would appear from clinical and experimental observations that brain flap does not occur when the intracranial pressure is normal.

Changes in Spinal Fluid Following Injection for Spinal Anesthesia.—The spinal fluids of thirty-one cases were examined by Iason et al. eighteen hours after spinal anesthesia. Of fourteen cases eleven showed a definite pleocytosis, ten cases being of the lymphocytic variety, one of the polymorphonuclear variety. Seventeen cases were not considered because of the presence of red blood cells in the spinal fluid. In twenty of the thirty-one cases examined there was an increase in the spinal fluid sugar averaging 37.3 per cent. There was no change in the albumin, globulin or colloidal gold curves. Thirteen of the thirty-one cases developed mild postanesthesia sequelae. There was no correlation between the occurrence of postanesthesia sequelae and the changes observed in the spinal fluid. The technic of spinal anesthesia caused in certain instances a mild meningeal reaction but apparently does not produce serious organic changes, as reflected in the change of the composition of the cerebrospinal fluid.

United States Naval M. Bull., Washington, D. C.

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Value of High Oxygen in Preventing Physiologic Effects of Noxious Concentrations of Carbon Dioxide. E. W. Brown.—p. 523.
Treatment for Infestations of Man with Parasitic Worms. M. C. Hall.—p. 553.
Sodium Thiosulphate in Treatment of Syphilis. A. T. Walker and C. F. Flower.—p. 569.
Relation of Proctology to General Medicine. C. E. Henry.—p. 578.
District Medical Officer. R. P. Crandall.—p. 584.
Tropical Influence on Dental and Oral Disease. P. A. McCole.—p. 587.
Medical Mycology. G. W. Cooper.—p. 590.
Gonococcus Infection of Heart: Two Fatal Cases Due to Gram-Negative Diplococcus. J. M. McCants.—p. 603.
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Pseudomyxoma Peritonei. H. V. Hughens.—p. 618.
Syphilis Problem on Cruising Ship. L. G. Jordan.—p. 621.

United States Vet. Bur. M. Bull., Washington, D. C.

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Early Diagnosis of Carcinoma. Henry Schmitz.—p. 529.
*Typhoid Vaccine in Treatment of General Paralysis of Insane. G. W. Schelm.—p. 544.
Inflammatory Involvement of Bursae About Shoulder Joint. Sterling Bockoven.—p. 549.
Notes, Theoretical and Therapeutic, on Worry. G. V. N. Dearborn.—p. 551.
Tuberculous Enteritis Complicating Pulmonary Tuberculosis. A. G. Walker.—p. 559.
Tuberculosis of Bone and Joints: Differential Diagnosis and Treatment. L. C. Jensen.—p. 565.
Certain Aspects of Chronic Cardiac Disease Due to Rheumatic Infection. E. T. Gallagher.—p. 568.
*Surgical Treatment of Varicose Veins of Lower Extremities. G. W. Kiehnhoff.—p. 577.
Diagnosis of Ulcers of Stomach and Duodenum. C. L. Magruder.—p. 580.
Autopsy and Value. M. T. Moorehead.—p. 584.
*Improved Method for Staining Tubercle Bacilli in Tissues Cut by Frozen Section Technic. E. S. Moss.—p. 590.
Mandibular Third Molar. C. E. Simon.—p. 596.
Malignancy of Larynx. J. L. Hammond.—p. 599.
Carcinoma of Lungs: Case. E. McCann.—p. 603.
Vincent's Infection from Medical Viewpoint. T. O. Morris.—p. 606.
Plumbism. J. W. Wills.—p. 608.
Raynaud's Disease. E. K. Allis.—p. 612.

Typhoid Vaccine in Treatment of Dementia Paralytica.—Schelm reports the results obtained in twenty cases of dementia paralytica treated with bacterial protein (typhoid vaccine). There was a physical and mental improvement and a reduction in the positivity of laboratory observations in more than 50 per cent of the patients. Five of the twenty patients have left the hospital and are making a satisfactory social adjustment. Only one patient showed marked retrograde changes. Improvements were noted in the advanced cases as well as in the less mentally and physically affected. The remissions were as prompt as those treated with other pyrexial agents. The improvement of the patient's condition was found not to be directly proportioned to the height of the body temperature attained following bacterial vaccine administration.

Surgical Treatment of Varicose Veins of Lower Extremities.—Kiehnhoff discusses the indications for surgical intervention in and the operative methods for varicose veins of the lower extremities, as based on forty-five cases. A high percentage of cures were effected in his series. Fully one fourth of these patients had been in vocational training on account of disability from varicose veins. In six of the early cases of this series, ligation or excision was confined to the veins of the leg. In all but two there was a recurrence, due apparently to two factors, namely, backing up of blood through the communicating branches from the deep veins and enlargement of branches of the internal saphenous, beginning in the leg and emptying above the knee. It was then decided that to obtain best results the superficial veins should be ligated as near their terminations as possible. In the remaining cases the internal saphenous was ligated near the femoral junction; and the external saphenous, if involved, at its entrance through the deep fascia in the popliteal space. It is emphasized that this procedure relative to the internal saphenous vein was followed whether or not there was any visible manifestation of varicosity above the knee. Ligation at intervals has been found satisfactory in the class of cases in which stripping is feasible; but, as a rule, it is not found entirely effective, in that dilatation of the remaining sections, due to filling from communicating branches, may occur. Enlargement of small branches not previously shown also takes place. When it is not desirable to use general anesthesia, this method is the one of choice, even though a second operation is later required. The success of this method depends largely on the ligation at short intervals, say 4 to 5 inches. Excision of the principal superficial veins and important branches was found by far the most effective procedure. In the cases followed there were no recurrences after two and three years.

Improved Method for Staining Tubercle Bacilli in Tissues Cut by Frozen Section Technic.—A staining method has been developed by Moss and is recommended for the demonstration of tubercle bacilli in tissues without damage to histologic detail. The organisms when present may be detected with comparative ease. The stained specimens may be examined for other histologic structure. Stained and mounted specimens may be permanently filed.

Virginia Medical Monthly, Richmond

57: 211-282 (July) 1930

Approach to Acute Abdomen. E. P. Lehman, University.—p. 211.
Treatment of Infected Abortions. Southgate Leigh, Norfolk.—p. 219.
Glycosuria. W. B. Martin, Norfolk.—p. 222.
Malignant Tumors of Thyroid Gland: Six Cases. Carrington Williams, Richmond.—p. 228.
Bronchiectasis. P. F. Whitaker, Kinston, N. C.—p. 233.
*Polycythemia: Case. H. W. Potter, Newport News.—p. 236.
Perineorrhaphy with Longitudinal Sutures. M. P. Rucker, Richmond.—p. 238.
Uses and Abuses of Medical and Surgical Diathermy in Gynecology. E. L. Lowenberg, Norfolk.—p. 239.
*Experiences with Remedy for Controlling Hemorrhage, Including Those Following Tonsillectomies. J. H. Hiden, Pungoteague.—p. 246.
Skin Diseases About Eyes. Russell Fields, Washington, D. C.—p. 248.
*Development of Pernicious Anemia in Patient Under Observation: Case. Dewey Davis and Douglas Vanderhoof, Richmond.—p. 250.
Nondiabetic Hyperglycemia and Glycosuria. C. M. Caravati, Richmond.—p. 251.
Release of Placental Blood During Third Stage of Labor. Philip Jacobson, Petersburg.—p. 254.
Pellagra and Tuberculosis. O. F. Geck, New York.—p. 256.

Polycythemia.—The case reported by Potter does not appear to belong to the class known as polycythemia vera, as the spleen was not enlarged and there was no dusky red coloration. The period of freedom from symptoms for three years seems rather long for a remission. This would not be suggestive of Vaquez's disease. On the other hand, no etiologic factor could be determined in this case, yet it cleared up under symptomatic treatment and so far has not recurred.

Experiences with Remedy for Controlling Hemorrhage.—Hiden uses a mixture of pulverized potassium permanganate and zinc oxide in two strengths, one a 25 per cent of the permanganate and 75 per cent of the zinc, the other 40 per cent of the permanganate and 60 per cent of the zinc. Some cases will do well with the weaker mixture, while others may require the stronger mixture. He has used equal parts of the component powders in obstinate cases of hemorrhage with excellent results. The mixture should be used fresh and mixed well but loosely. If allowed to stand long, it loses much of its efficiency and may become practically no more than a permanganate of zinc, or, at least, lose much of its sealing properties. In applying this mixture for hemorrhage he first applies a sterile gauze sponge or a firm tampon against the bleeding surface and uses enough gentle pressure to check the bleeding long enough to apply the remedy directly to the bleeding tissues so that the powder may come in direct contact with the arterioles and capillaries without being mixed with blood or having blood between the medicine and the capillaries. The mixture is held in place for two or three minutes, or even longer, if necessary, so as to let its action on the tissues and capillaries take well before the gauze sponge is removed.

Development of Pernicious Anemia in Patient Under Observation.—Davis and Vanderhoof report the case of a woman, aged 53, who was under treatment for achlorhydria. She did well for about six years, when she returned because of slight fever and attacks of abdominal pain suggesting cholecystitis. She had for a short time noticed some sore tongue and a burning sensation in the epigastrium. Cholecystography disclosed a gallbladder with normal function. The blood count was hemoglobin 62 per cent, red blood cells 2,380,000, and mean diameter of red cells 8.53 microns (normal 7.40 microns); the form of the red cell curve was typical of pernicious anemia. She was immediately ordered 3 ounces (90 cc.) of a potent liquid liver extract a day. Eight days later the blood count was hemoglobin 52 per cent, red blood count 2,160,000, reticulocytes 14.4 per cent. Three weeks later her hemoglobin was 70 per cent and red blood count 3,890,000. Her fever disappeared, there was no abdominal discomfort, and she felt well. The daily allowance of liver extract was reduced to 2 ounces (60 cc.) and six weeks later her blood count was normal. The liver extract was discontinued but she continued taking dilute hydrochloric acid as her indigestion returned if it was omitted. Three months later she returned because of a recurrence of fever and epigastric pain. The blood count was hemoglobin 67 per cent, and red blood count 2,500,000. Adequate liver extract therapy restored this to normal in one month. She is now taking 1 ounce (30 cc.) of liver extract and 3 teaspoonfuls of dilute hydrochloric acid a day.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 1-46 (July 5) 1930

Nervous Semeiology: Epilepsy. S. A. K. Wilson.—p. 1.
Inflammation of Diaphragm. A. Ramsbottom.—p. 5.
Horseshoe Kidney: Two Cases. A. Jacobs.—p. 8.
Boxer's Thumb. I. H. Lloyd-Williams.—p. 9.
Osteitis Fibrosa with Initial Symptoms Resembling Rheumatic Infection: Case. J. S. Craig and J. H. Shearer.—p. 9.
Arterial Pressure in Clinical Aspects. J. F. H. Dally.—p. 10.
Cerebral Abscess Following Tonsillar Infection. W. Johnson.—p. 13.
*Orbital Cellulitis in Children. E. T. Smith.—p. 14.
Renal Cyst Containing Calculi. D. R. E. Roberts.—p. 15.
Traumatic Rupture of Spleen. J. Livingston.—p. 16.

Orbital Cellulitis in Children.—Smith reports three cases. He says: Apart from cases of orbital cellulitis due to facial infection, in which the orbital condition is only an incident in a fatal septicemia, there are two main causes. The first, and the most common, is nasal sinus infection, with outward displacement of the proptosed eye and not severe general illness. Here the rhinologist can give most help; and, if he is called in early, incision into the orbit will probably be avoided. The second is metastatic osteomyelitis or periostitis of the orbital walls, with severe illness and fever and central proptosis. Early incision (as in the analogous disease of the long bones and epiphyses) is essential if the eye is to be saved. When once the orbital tissues are thoroughly infiltrated and edematous it seems to be difficult or impossible to bring about resolution before the cornea has sloughed, owing to interference with its circulation as well as to exposure. The aim should be to prevent this phlegmonous condition by prompt incision down to the bones involved. Hence the importance of early and accurate diagnosis. In every case of a pink and swollen eyelid the general practitioner should realize the significance of proptosis, if this exists. In its absence he may temporize; in its presence he should act with decision. No case of inflammatory exophthalmos should be regarded lightly.

Journal of State Medicine, London

38: 311-372 (June) 1930

Trauma of Chest in Relation to Incidence of Pulmonary Tuberculosis. G. B. Price.—p. 311.
Alpine Climate and Diseases of Heart. L. Michaud.—p. 322.
Surgical Aid in Management of Pulmonary Tuberculosis. J. Gravesen.—p. 333.
Surgical Treatment of Pulmonary Tuberculosis by Thoracoplasty. A. Brunner.—p. 342.
Aspects of Modern Psychotherapy. C. G. Jung.—p. 348.
Federal Legislation as Regards Insurance Against Disease, Accident and Old Age. A. Lamazure.—p. 355.
Biologic Effects of Alpine Climate. G. Senn.—p. 360.

Lancet, London

2: 1-62 (July 5) 1930

Fibroses of Heart. J. Cowan.—p. 1.
*Metabolism of Tumors. F. Dickens and F. Šimer.—p. 10.
*Removal of Nonmalignant Tumors of Breast. H. H. Greenwood.—p. 12.
Action of Radon on Spinal Cord. H. Cairns and J. F. Fulton.—p. 16.
*Relative Value of Various Solutions for Sclerosis of Varicose Veins. D. Levi.—p. 16.
Glandular Fever Simulating Typhus: Two Cases. M. Radford and J. D. Rolleston.—p. 18.
Retrobulbar Neuritis and Disseminated Sclerosis. C. P. Symonds.—p. 19.

Metabolism of Tumors.—Dickens and Simer found a definite deficiency in the oxidation of carbohydrate by tumor tissue.

Removal of Nonmalignant Tumors of Breast.—In sixty cases Greenwood first gave a preliminary treatment consisting of inunction with an iodine compound, mercurial ointment, radiant heat, ultraviolet ray treatment, hot bathing, roentgen treatment, firm bandaging or support by a well fitting brassière, and sun baths. Thomas's operation has been done in fifty out of sixty cases; in the remaining ten, amputation was done. The youngest patient was 20 years old and the tumor was a "fibroadenoma." The youngest patient with mazoplasia was 23 years of age, the oldest, 63 years. Only five out of sixty were

unmarried. In every patient over the age of 45 and in most of the others the whole corpus mammae was removed; twelve of the sixty patients had a segment only of the gland removed, but of these three were cases of adenoma. Forty operations were done on the left side, twenty-one on the right side; one patient required removal of both breasts. In the fifty conservative operations the nipple was preserved in every case and in none of these was there any untoward consequence. The results are almost uniformly good. Sometimes a neuralgic pain, usually trivial, is complained of along the course of the descending branches of the cervical plexus or sometimes along the distribution of the intercostohumeral. These pains are more common among the cases of mazoplasia in which a segment only of the gland has been removed, and the impression grows stronger that in this disease it is always the wiser course to remove the whole of the corpus mammae. In two cases the pathologist's report was "duct carcinoma." In both these the radical operation was done later and in both there is no sign of recurrence. In a third case the report was "carcinoma." The patient declined the radical operation and had a prophylactic course of roentgen treatment. Nearly two years has elapsed without any evidence of recurrence or metastasis.

Value of Various Solutions for Sclerosis of Varicose Veins.—Levi prefers a 5 per cent solution of sodium morrhuate because it is much less irritant than salicylate or quinine, and does not produce sloughing if injected into the subcutaneous tissues. The reaction it produces in the vein is much less severe than quinine. The injection is almost painless and the discomfort afterward is not great. He has not seen an ulcer following an injection of sodium morrhuate. Most of the patients treated reacted to the first injection. There is not the same tendency to extensive clot formations as there is with quinine and with ethyl carbamate. No general toxic symptoms have been observed.

Medical Journal of Australia, Sydney

1: 767-798 (June 14) 1930

Psychoses Associated with Gross Brain Lesions. R. G. Williams.—p. 768.
*Refractive Index of Cerebrospinal Fluid Used as Check on Chemical Analysis. W. J. Penfold and D. H. Irving.—p. 772.
Possible Influence of Climate on Incidence of Peptic Ulcer in Australia. F. L. Apperly.—p. 779.
*Excretion of Lead in Urine and Feces of Patients Injected with Colloidal Lead. R. K. Newman.—p. 781.
Multiple Injuries. H. S. Stacy.—p. 785.

Chemical Analysis of Cerebrospinal Fluid.—About 100 specimens of cerebrospinal fluid were examined by Penfold and Irving for their protein, chloride, sugar and urea content. The average quantity of each constituent present was: protein, 24 mg. per hundred cubic centimeters; chloride, 732 mg.; sugar, 76 mg.; urea, 24 mg. The lowest quantity of sugar found in these specimens of fluid was 68 mg.

Excretion of Lead in Urine and Feces of Patients Injected with Colloidal Lead.—The results of the examination made by Newman of the excretion of lead following injections support the belief that the therapeutic action of the lead is a quantitative rather than a qualitative one. At the average rate of excretion found it would take more than ten weeks for the complete excretion of a single injection of 50 mg. of lead and for most of that period the lead concentration in the urine and therefore probably in the blood also would be approximately of the same order as that found in cases of lead poisoning. Clinical experience has shown, however, that this concentration is not sufficiently great to produce therapeutic results, since injection of 50 mg. at infrequent intervals is not satisfactory; in fact, it appears to be necessary to inject at comparatively frequent intervals to secure results. Under these circumstances the average concentration of lead in the urine and in the blood throughout the period of treatment would probably approximate to the maximum in the cases investigated in this work. Newman suggests that the dose and the frequency of injection in each person treated should be determined by reference to the concentration of lead in the urine, lead being administered as necessary to keep this figure between 0.5 and 0.1 mg. per liter for as long as the body can tolerate it. There is ample evidence to show that cancer growth may continue uninterruptedly in bodies with considerable quantities of lead locked up in the tissues.

National Medical J. of China, Peiping

16: 135-324 (April-June) 1930

Occurrence of Acute Poliomyelitis in North China. S. H. Zia.—p. 135.
*Tuberculous Ulceration of Intestines. K'e-Kang Huang.—p. 145.
Anemias of Pregnancy. C. S. Yang and C. S. Keefer.—p. 159.
Types of Dermatomyces Isolated from Scalp Infections in Peiping. C. N. Frazier, T. J. Kurotchkin and Jui-Wu Mu.—p. 167.
Mycologic Examination of Peiping Orphanages. T. J. Kurotchkin and H. L. Chung.—p. 171.
*Demonstration of Bacillus Leprae by Means of Cantharides Plaster and Carbon Dioxide Snow. Ch'Uan-Ku'Ei Hu and Jui-Wu Mu.—p. 177.
Treatment of Chronic Osteomyelitis by Orr Method. L. C. Chu.—p. 182.
Growth Development of School Children in Peiping. Kang-Liang Hsü and I-Wen Liang.—p. 195.
*Action of Certain Dyes and Drugs on Pathogenic Monilia Tropicalis. C. E. Lim and T. J. Kurotchkin.—p. 215.
B C G in Prevention of Tuberculosis. G. A. M. Hall.—p. 223.
Primary Carcinoma of Liver. Chao-Jen Wu and Hsi-Jung Kang.—p. 234.
Tuberculosis of Mammary Gland: Six Cases. S. M. Chen.—p. 244.
Ophthalmoplegic Migraine: Case. Yu-Lin Ch'eng.—p. 255.
Chyluria: Case. S. N. Cheer and Shih-En Pai.—p. 259.
Institute of Medical Research. H. G. Earle.—p. 267.
Chinese Pharmacopeia. B. E. Read.—p. 281.
Observations on Some European Clinics. J. W. H. Chun.—p. 287.
Tetanus in Ancient Chinese Medical Literature. H. Yü.—p. 297.

Tuberculous Ulceration of Intestines.—Huang found tuberculosis of the intestines in 43 per cent of eighty-eight cases of pulmonary tuberculosis coming to necropsy. The age distribution of tuberculosis of the intestine corresponded to that of pulmonary tuberculosis. Tuberculous ulcers of the intestine were most frequently found in the ileum, cecum and colon, either alone or in combination. The bowel symptoms had no relation to location, severity or extent of the ulceration. Severe and persistent diarrhea occurring during the course of chronic pulmonary tuberculosis practically always means the presence of tuberculous ulcers of the intestine when specific infection such as dysentery is excluded. The pulmonary condition may be silent. Anemia was common in tuberculosis of the intestine. Of the forty-three cases, 40 per cent showed marked abdominal and intestinal symptoms, 46 per cent showed only mild symptoms, and 14 per cent were symptomless. The important symptoms are abdominal pain, abdominal masses, diarrhea, and diarrhea alternating with constipation. None of these, however, are pathognomonic for tuberculosis of the intestine. There were three cases of perforation and two of dysentery.

Demonstration of Bacillus Leprae by Means of Cantharides Plaster and Carbon Dioxide Snow.—Hu and Mu produced blisters on the cutaneous lesions of lepers by means of cantharides plaster and carbon dioxide snow and examined the serum of the blisters thus produced for the presence of *Bacillus leprae*. For control and comparison, the examinations were made in parallel with those of the nasal secretion, lymph gland juice and fixed tissues removed at biopsy. Altogether, thirteen consecutive cases of leprosy were studied, three of the nodular type and ten of the maculo-anesthetic type. All of them were clinically typical cases of leprosy. The duration of their manifest infections varied from three months to seven years. The acid-fast bacilli were found in the serum of blisters produced by cantharides plaster in seven of the thirteen patients examined. Nine showed positive results with the serum of the blisters produced by carbon dioxide snow. Four were positive by examination of the nasal secretions. Six gave positive results with the aspirated lymph gland juice. The juice of the excised tissues from nine patients contained acid-fast bacilli in groups or clumps. Ten patients were positive for acid-fast bacilli in stained sections of the biopsy tissues. In three, all the methods gave negative results.

Action of Dyes and Drugs on Monilia Tropicalis.—Several substances have been tested by Lim and Kurotchkin for their fungistatic and fungicidal power against *Monilia tropicalis* and it was found that, although the fungistatic property of gentian violet and brilliant green was high, the fungicidal power of both dyes was of no practical significance. The fungistatic and fungicidal properties of other drugs, as mercurochrome-220 soluble, acriflavine hydrochloride, rivanol and neoarsphenamine, were, in general, too low to suggest the possibility of therapeutic application of these substances. Intravenous injections of gentian violet, mercurochrome, acriflavine, rivanol, neoarsphenamine and immune antimonilia serum could not prevent the development of a fatal mycotic septicemia in rabbits experimentally infected with *Monilia tropicalis*.

Archives des Maladies de l'App. Digestif, etc., Paris

20: 529-640 (May) 1930

*Acute Cholecystitis: Treatment. Hamant and P. L. Drouet.—p. 529.
*Colotyphlitis: Diagnosis. J. H. Oltramare.—p. 533.
Distribution of Chlorine in Blood. A. Landau, G. Glass and S. Kaminer. —p. 546.
Intestinal Parasitic Protozoa: Pathogenic Rôle. A. Horowitz, J. Sautet and G. Terrial.—p. 582.

Acute Cholecystitis: Treatment.—Hamant and Drouet report a case of acute cholecystitis in a woman, aged 58, which shows that in this condition medical drainage of the gallbladder gives results comparable to those obtained with surgical treatment. The patient had suddenly had a violent attack of pain in the region of the liver. This attack continued for twelve hours. Then jaundice appeared, gradually became intense, and lasted twenty days. The urine was dark. The temperature was increased and varied from 99.5 F. in the morning to 103 F. in the evening. Chills and profuse perspiration were noted. The jaundice became less marked, without disappearing, however; the urine became clear and the stools regained their normal color. The general condition of the patient improved until the second painful attack, which lasted several hours and was followed by an intensification of the jaundice and a reappearance of the fever. On examination the patient was found to be markedly icteric. The stools were white and the urine was dark. The liver was several fingerbreadths below the costal margin and was painful on pressure. The pain was particularly severe in the region of the gallbladder, where a reaction of defense was elicited. Spontaneous pain was absent. The temperature varied between 99.5 F. in the morning and 103.5 F. in the evening. Late in the afternoon the patient had chills and at night she had insomnia. She perspired profusely. The pulse rate was 106. The clinical examination, the temperature curve and the gallbladder pain indicated an infection of the biliary tract with jaundice, and the patient was sent to the hospital for operation. The grave general condition and the pulse rate, which was not modified by a tonicardiac treatment, contraindicated surgical intervention, however, and an attempt was made to improve the symptoms sufficiently by means of duodenal tubage so that an operation could be performed. A duodenal tubage was performed and resulted in the collection of a large amount of abnormally dark bile. Then 20 cc. of a 30 per cent solution of magnesium sulphate was introduced into the duodenum. The amount of bile that was being withdrawn increased, and at the end of twenty minutes the liquid was darker but clear. Half an hour later 20 cc. more of magnesium sulphate solution was introduced and siphoned off after several minutes. Forty-five minutes later a third instillation of magnesium sulphate was performed. One hundred cubic centimeters of dark but clear bile was obtained. The patient was tired and the drainage, which the authors had intended to make permanent, was discontinued. That evening the temperature dropped to 98.5 F. The patient was relieved and was able to sleep that night. On the following day the urine was lighter and the stools were slightly colored. On the next day the jaundice was less marked and the condition of the patient was better. Two subsequent duodenal tubages were followed by complete recovery.

Colotyphlitis: Diagnosis.—Oltramare discusses one case of acute colotyphlitis and four cases of chronic colotyphlitis in which microscopic examination of the appendix removed at operation showed that it was normal. He states that this condition occurs in persons with a history of intestinal disturbance characterized by periods of constipation, by chronic constipation or by alternate constipation and diarrhea. It is characterized especially by a painful malaise, an uncomfortable sensation in the right iliac fossa that increases under the influence of various factors as physical fatigue and the approach of the menses. A painful point is not present as in appendicitis but there is a zone that is sensitive to palpation. Muscular defense is absent. The pain sometimes occurs at regular intervals, usually five or six hours after meals when the bolus of food reaches the cecum. Examination of the stools shows an alteration in the digestion of fats and starch. Roentgen examination reveals dilatation and decreased mobility of the cecum and stasis.

Gynécologie et Obstétrique, Paris

21: 289-384 (April) 1930

*Late Hemorrhages Following Labor. H. Éparvier.—p. 289.
*Chorea of Pregnancy. S. A. Selitzky.—p. 298.
Lesions of Bladder in Gynecologic Laparotomies. C. Daniel and D. Mavrodin.—p. 311.
Connective Tissue Lesions of Endometrium in "Functional" Menorrhagia and Metrorrhagia. J. Kreis and J. Rigaut.—p. 324.
*Uterine Elevator. J. Monjardino.—p. 366.

Late Hemorrhages Following Labor.—In 18,213 deliveries observed over a period of fourteen years, Éparvier noted secondary hemorrhages 39 times (2.14 per cent). The frequency of the complication seemed extremely variable for different years. Thus, in 1911 in 1,136 deliveries there were 4 cases, in 1912 in 1,110 deliveries there was 1 case, in 1913 in 1,113 deliveries there were no cases, in 1914 in 1,281 deliveries there were 6 cases, and so on. In 26 of the 29 cases, curettage gave good results or at least did not result disastrously. In 3 cases the intra-uterine intervention was followed by a fatal puerperal infection. The author emphasizes the importance of guarding against retention of a piece of placenta. One should wait a sufficient length of time following the birth of an infant to permit a complete separation of the placenta; during this period, kneading of the uterus should not be practiced. If after a long wait it is necessary to express the placenta, one should not hesitate to practice an artificial delivery. In the great majority of cases a careful examination of the placenta will reveal whether or not a portion has been retained. If it appears that this has occurred, inspection of the uterus with sterile gloves should be performed immediately because late inspection is accompanied by great risk. Curettage should be performed with gentleness; it may be followed by rapid recovery, by recurrence of the hemorrhage or by infection. In puerperal infection venous ligation or hysterectomy should be performed, the choice of the form of treatment depending on the indications in the individual case. The absolute indications for hysterectomy are a severe infectious condition in which the uterus is infected and soft and a hemorrhage that occurs after curettage.

Chorea of Pregnancy.—In a study of eight cases of chorea in pregnancy, Selitzky found that it occurred most frequently in anemic women. He does not believe, however, that anemia produces chorea because even in the most severe blood diseases (in pregnant and in nonpregnant women) it is rare. Anemia apparently plays a definite but complementary part in the habitus of women with chorea. Therefore one should not speak of the anemia that appears "during pregnancy" but of a constitutional insufficiency, which perhaps includes the morphologic modifications of the blood passing beyond their physiologic limits during pregnancy.

Uterine Elevator.—Monjardino gives an illustrated description of an instrument that he has used over a long period of time for elevating the uterus by the vaginal route in total abdominal hysterectomy. It consists of two metallic tubes, one inside the other, whose maximum diameters are, respectively, 28 and 24 mm. The smaller one slides into the larger one, whose end resembles a large Hegar dilator and presents at its upper part a concavity to receive the cervix uteri. The author gives a detailed description of the technic used in manipulating the instrument and states its advantages thus: 1. One of the hands of the surgeon or of the assistant is not rendered inactive. 2. The succession of the stages of the operation and particularly the displacement of the ante-uterine peritoneum are facilitated. 3. After the ligation of the utero-ovarian pedicles the uterine arteries, rendered more prominent, are dissected with greater ease. 4. The ureters, because of their anatomic relations, are separated and lowered and can be dissected with gauze without difficulty on the resistant plane presented by the instrument. 5. The uterosacral ligaments are exposed better and their division is facilitated. 6. The incision in the vagina can be made in a plane low down and far from the cervical lesion;

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the instrument is then withdrawn and its end is placed in the vestibule of the vulva. 7. All forms of vaginal drainage are rendered possible and even a Mikulicz drain may be inserted.

Paris Médical

1: 463-490 (May 24) 1930

Diseases of Liver: Annual Review of Literature. E. Chabrol and É. Boltanski.—p. 463.
*Infections of Liver and Biliary Tract Caused by Bacillus Mucosus-Capsulatus. P. Carnot, J. Dumont and E. Libert.—p. 479.
*Jaundice Caused by Hepatitis. H. Bénard and J. Caroli.—p. 483.
Hemoglobinuria of Biliary Origin in Tertian Malaria. É. Chabrol, R. Cachera and R. Waitz.—p. 488.

Infections of Liver and Biliary Tract Caused by Bacillus Mucosus-Capsulatus.—Carnot et al. give the case reports of two patients who presented an infection of the liver and bile tract. One of the patients had only a benign catarrhal jaundice, whereas the other had a recurrent jaundice with attacks of septicemia that terminated fatally. In both cases bacteriologic examination of the bile removed by means of a duodenal tube revealed that the infection was caused by *Bacillus mucosus-capsulatus.*

Jaundice Caused by Hepatitis.—A woman, aged 29, was operated on for gallstones. Although some gallstones were found in the gallbladder, none were found whose presence would have explained the intense jaundice. Despite the simplicity of the intervention and the rapidity with which it was performed and the satisfactory general condition of the patient, she died two days later. Postmortem examination performed shortly after death revealed a normal biliary tract containing no stones. The liver, however, was bile-stained and had lighter and darker areas, giving it a mottled appearance; microscopic examination disclosed the presence of a marked hepatitis. Bénard and Caroli emphasize the necessity for taking these cases of jaundice caused by hepatitis into consideration when one is deciding on operation because surgical intervention in these cases nearly always terminates fatally.

Presse Médicale, Paris

38: 753-776 (June 4) 1930

Obsessions: Clinical Forms. C. Vurpas.—p. 753.
*Acute Appendicitis: Ambulatory Form. M. Oudard.—p. 755.
*Alopecia Areata: Frequency in Exophthalmic Goiter. R. Sabouraud.—p. 757.
Cardiac Pain: Treatment by Topo-Analgesia. R. Godel.—p. 759.
*Ignipuncture of Tonsils: Disadvantages. A. Viela.—p. 761.
*Amebic Dysentery: Diagnosis. B. Saad.—p. 763.

Acute Appendicitis: Ambulatory Form.—Oudard states that mild attacks of appendicitis may be accompanied by a reaction so slight that they pass almost unnoticed. The patient has a colic that becomes localized in the right iliac fossa and gastric distress with or without nausea; the symptoms disappear spontaneously, occasionally in a few hours, and the patient does not interrupt his usual work. Frequently the mild attacks are diagnosed only retrospectively by interrogation concerning a more violent, characteristic attack. This condition constitutes the ambulatory form of acute evolutionary appendicitis. It is only after the lapse of several days (unless a perforation occurs) that the patient consults a physician because of the persistence of a slight disturbance or a pain in the right iliac fossa. The author divides cases of acute ambulatory appendicitis into two groups, thus: (1) cases with inflammation of the greater omentum or abscess formation and cases of inflammatory tumors and (2) cases in which the appendicitis is complicated by peritonitis.

Alopecia Areata: Frequency in Exophthalmic Goiter.—According to Sabouraud, alopecia areata occurs in exophthalmic goiter almost as frequently as exophthalmos, enlargement of the neck, enlargement of the heart, and tremor. Although alopecia areata may be absent, just as the other chief symptoms are inconstant, it is nevertheless one of the most apparent and most frequent of the symptoms of exophthalmic goiter.

Ignipuncture of Tonsils: Disadvantages.—Viéla believes that the most objectionable feature of thermopuncture or galvanopuncture of the tonsils is an inevitable encystment of the cryptic culdesacs, which are almost always infected. This predisposes to recurrent endotonsillar and peritonsillar abscesses, which result in cicatricial anatomic disorganization that renders more difficult and dangerous all methods of ulterior exeresis, particularly tonsillectomy. The author completes his conclusions by the corollary that the most definite, least contestable and perhaps the most frequent indications for tonsillectomy in the adult are cryptic retention and recurrent peritonsillitis maintained, aggravated or created by ignipuncture.

Amebic Dysentery: Diagnosis.—In patients in whom amebic dysentery is suspected but in whom microscopic examinations of the stool are negative, Saad recommends scraping of the rectosigmoidal ulcerations, under the control of the rectoscope, to obtain additional material for microscopic examination. Rectoscopy alone enables one to diagnosis dysenteric conditions on the basis of erosive or ulcerative, hemorrhagic rectosigmoidal lesions covered with a false membrane; with it alone, however, one cannot tell whether the lesions are manifestations of amebic dysentery or of dysenteriform colitis caused by *Lamblia intestinalis, Balantidium coli, Bacillus paratyphosus* or *Bacillus pseudodysenteriae.*

Archivio Italiano di Chirurgia, Bologna

26: 1-107 (April) 1930

Gastric Volvulus. A. Anzilotti.—p. 1.
Effect of Complete Drawing Off of Bile. P. Barco.—p. 50.
*Brunner's Glands in Relation to Genesis of Gastroduodenal Ulcers. F. Pescatori.—p. 71.
Case of Chronic Purpura: Cure Effected by Ligation of Splenic Artery. P. Bastianelli.—p. 96.

Brunner's Glands in Relation to Genesis of Gastroduodenal Ulcers.—Pescatori reports three cases observed by him clinically, and diagnosed microscopically, after the surgical removal of gastroduodenal ulcers that developed on the base of a hyperplasia of ectopic Brunner's glands or in a normal site of the pylorus or duodenum. The author regards the hyperplasia as of congenital origin but considers also the possibility that the hyperplasia, instead of resulting from a single gland, may be due to an abnormal accumulation of glandular bodies. He describes the anatomoclinical characteristics of these ulcerative types, whose symptomatology (pylorospasm) was observed much earlier than the clinical or roentgen signs of gastric ulcer. The author formulates also the hypothesis that such ulcerative lesions develop because the Brunner gland after a time comes to form an actual foreign body in the gastric submucosa, which produces fibrosis and gives rise to a complete local fixation of the gastric mucosa to the muscular tunic. Abolition of the normal function of the submucosa results. The corresponding gastric mucosa, already distended and impaired by the foreign body, remains exposed to all direct attacks and injuries, because the normal protection of the mucosa—gliding on the muscular tunic—is lacking.

Archivio Italiano di Urologia, Bologna

6: 113-212 (April) 1930

Solitary Serous Cysts of Kidney. S. Latteri.—p. 113.
Physiopathology of Ureter Obstructed by Introduction of Small Hollow Glass Tubing into Its Lumen. P. Pieraccini.—p. 158.
*Perforation of Appendix into Bladder. R. Palma.—p. 188.

Perforation of Appendix into Bladder.—Palma states that, while vesico-appendicular fistulas are rare, about forty cases have been reported in the literature. The treatment may be medical or surgical. The attitude to be taken toward a process that involves simultaneously the appendix and the bladder depends on whether or not a perforation has been definitely diagnosed. If no perforation has occurred, assuming that the diagnosis is correct, although, especially at the outset, the diagnosis is admittedly difficult, all possible means must be employed to cause the process to retrogress, in order to prevent perforation, attention being directed chiefly to the causal disorder. If, in spite of all endeavors, perforation occurs, the conduct of the case will vary, depending on the gravity of the causal disease, and, above all, on the gravity of the general symptoms. If the local and the general symptoms indicate that the disorder is not grave, medical treatment may be tried,

which will consist in removing from the bladder the products of infection by means of a self-retaining catheter or simple bladder lavage with slightly antiseptic solutions, several times a day. In many cases, such treatment will be sufficient. In other cases, in spite of local and general treatment, the course of the process may be progressive; especially in the cases in which there is a large collection that cannot be evacuated from the bladder, in which event it is not advisable to tarry too long with medical treatment. To avoid the danger of a diffuse peritonitis it may be necessary to operate, if only by a simple incision, in order to give an outlet for the periappendicular collection; and if, at the same sitting, radical treatment cannot be applied, that may be postponed until another time, when the improved general condition of the patient will enable him to endure an intervention. Thus radical intervention is indicated only in those cases in which the acute period of the causal disease having passed, the bladder symptoms due to the permanence of the fistula persist, together with a return of the general conditions and with an ascending infection of the urinary tracts threatening (ureteropyelonephritis).

Pediatria, Naples

38: 529-584 (May 15) 1930

*Viscosity of Blood in Tuberculosis in Children During Tuberculin Shock. I. Gatto.—p. 529.
*Enterococcic and Para-Enterococcic Flora in Nursing and Weaned Infants. O. Palesa.—p. 534.
Purpura Rheumatica in Child: Pathogenesis: Case. A. Fiorentini.—p. 557.

Viscosity of Blood in Tuberculosis in Children During Tuberculin Shock.—Gatto determined the changes in the viscosity of the blood during tuberculin shock in fifteen allergic children with active tuberculosis, who reacted positively to tuberculin. Control determinations were made in two normal children with negative reaction to tuberculin. The withdrawal of the blood was made after a fast of at least five hours. It was found that allergic children in the first and second stages of tuberculosis, before the injection of tuberculin, have hyperviscosity of the blood, which is higher in those with tuberculosis of the serous membranes. During the peak of the tuberculin shock the viscosity of the blood diminished in twelve out of fifteen patients, in one of them it increased, and in two no modifications were observed. In eleven of the patients the determinations were also made before the elevation of the temperature. In five of them the viscosity diminished, in five it increased, and no modifications of it were observed in one patient. When the tuberculin shock disappeared, the viscosity gradually returned to normal. In the two normal children the viscosity was unchanged. The author concludes that in allergic children with active tuberculosis the diminution in the viscosity of the blood is a constant occurrence, while no modifications occur in the blood of normal children.

Enterococcic and Para-Enterococcic Flora in Nursing and Weaned Infants.—As a continuation of previous work, Palesa made new experimental researches to ascertain the physiologic function of the saprophytic enterococcic flora that is present in the intestine of infants. His group for observation comprised (1) breast-fed infants during the first three months of life, (2) infants receiving a mixed alimentation (breast milk and dried milk), (3) infants with a mixed alimentation and flour, and (4) weaned infants. The author describes his technic for making cultures from feces. From these cultures he was able to derive the "average bacterial formula," which gives a proportional criterion between the several aerobic types harbored in the infant's intestine, depending on its age and alimentation. The author considers that certain stocks of intestinal bacteria which are not identifiable with the enterococcus from which they differ only in inconstant or biochemical characteristics, should not be included among the generic denomination of "*Streptococcus faecalis*," and that the name "para-enterococcus" should be the correct denomination for this type. He found that the content of bacteria of the enterococcic group in feces of these four groups of infants is inversely proportional to the individual limit of assimilation of sugars in the intestine; that is, the former is as high as the latter is low. Several enteral or parenteral factors may modify this limit. In normal breast-fed infants during the first months of life, the enterococcic flora is scanty. After the administration of cow's milk, dextrin and starch (in artificially fed infants or in weaned infants) the enterococcic flora increases markedly. In all cases the rapid increase or diminution of enterococci in the feces indicates a pathologic condition. Frequently the first phenomenon precedes the second one. Bacteria of the para-enterococcic type predominate in normal digestion, while those of the enterococcic type predominate in pathologic conditions, such as chronic dyspepsia of infants.

Policlinico, Rome

37: 689-724 (May 12) 1930. Practical Section

*Modification of Impallomeni's Triangular Plaster Splint in Treatment of Fractures of Upper Extremity of Humerus. P. Marri.—p. 689.
Unilateral Seventh Cervical Rib: Two Cases. Q. Vischia.—p. 693.

Modification of Impallomeni's Triangular Plaster Splint in Treatment of Fractures of Upper Extremity of Humerus.—Marri describes in detail the construction and mode of application of his modification of Impallomeni's triangular plaster splint, which is based on anatomophysiologic considerations and on a knowledge of the various causes of dislocation of the fracture stumps, more particularly the action of the various groups of muscles.

Deutsches Archiv für klinische Medizin, Leipzig

167: 1-128 (May) 1930

*Atypical Periarteritis Nodosa. F. Stengel.—p. 1.
Psyche and Sympathetic Nervous System. H. Dennig, K. Fischer and K. Beringer.—p. 26.
*Cardiac Decompensation: Alkali Reserve of Blood. N. A. Kewdin and F. P. Lopatschuk.—p. 44.
*Diabetes Mellitus: Peroral Administration of Dextrose in Combination with Insulin. O. Pucsko.—p. 57.
*Cardiac Decompensation Caused by Fatigue of Myocardium: Treatment. R. Boller and H. Kutschera-Aichbergen.—p. 69.
Familial Hemochromatosis with Melanuria: Case. P. Uhlenbruck.—p. 80.
Phytopharmacologic Experiments with Lupinus Albus. L. Johanning.—p. 89.
Gustatory Disturbances in Diseases of Stomach. F. Delhougne.—p. 97.
*Erythremia: Spleen Treatment. H. Kähler.—p. 105.
Effect of Intrapulmonary Elevations of Pressure on Apex of Lung. W. Mohr.—p. 112.

Atypical Periarteritis Nodosa.—Stengel reports an atypical case of periarteritis nodosa in a woman, aged 32. The case was unusual because of the absence of many of the symptoms (renal, gastric, intestinal, muscular and hematic) that have been considered as characteristic of the disease. Moreover there were present a progressive pulmonary process, polyneuritis, and transient oculomotor paralysis.

Cardiac Decompensation: Alkali Reserve of Blood.—Kewdin and Lopatschuk determined the alkali reserve of the blood in 30 healthy persons (for control) and 82 persons with heart disease (7 cases of mitral disease, 6 of mitral stenosis, 27 of mitral insufficiency, 4 of aortic disease, 2 of aortic stenosis, 6 of aortic insufficiency, 2 of syphilitic aortitis, 2 of aortosclerosis, 1 of aneurysm of the aorta and 25 of myocarditis). They state that in healthy persons the alkali reserve of the blood varies in most cases from 48.1 to 60.5 per cent by volume of carbon dioxide, but exceptionally it is as low as 45.3 and even 42.4 per cent. In persons with cardiac decompensation the alkali reserve is usually normal or almost normal. When hypocapnia is also present its development may depend on the condition not only of the heart but of other organs, particularly the kidneys and liver, and on the irritability of the respiratory center. In decompensation, hypercapnia occurs less frequently than hypocapnia. All this indicates that from a determination of the alkali reserve of the blood during rest one cannot form an opinion concerning the functional capacity of the heart. Following physical exertion to the point of fatigue, the alkali reserve usually decreases; but in exceptional cases it increases. In persons with heart disease, particularly in those in whom decompensation is present, fatigue appears after only slight physical exertion and the alkali reserve undergoes the same changes as it does in healthy persons following marked physical exertion.

Diabetes Mellitus: Peroral Administration of Dextrose in Combination with Insulin.—Pucsko determined the effect of dextrose administered perorally in combination with insulin on the content of ketone bodies of the blood and urine of persons with diabetes mellitus. To do this he performed the following series of experiments: (1) control experiment, (2) peroral administration of 10 Gm. of dextrose dissolved in 50 cc. of fluid, (3) peroral administration of 10 Gm. of dextrose and two hours later subcutaneous injection of 40 units of insulin, (4) peroral administration of 10 Gm. of dextrose and four hours later subcutaneous injection of 40 units of insulin, (5) subcutaneous injection of 40 units of insulin and four hours later peroral administration of 10 Gm. of dextrose, (6) peroral administration of 10 Gm. of dextrose and immediately afterward subcutaneous injection of 40 units of insulin, and (7) subcutaneous injection of 40 units of insulin. The most marked decrease in the acetone and beta-oxybutyric acid contents of the blood and urine was noted in the experiments in which the peroral administration of dextrose was followed two or four hours later by a subcutaneous injection of insulin. The author therefore recommends this combined treatment in diabetes mellitus.

Cardiac Decompensation Caused by Fatigue of Myocardium: Treatment.—In the treatment of cardiac decompensation caused by fatigue of the myocardium, Boller and Kutschera-Aichbergen have obtained good results with intramuscular injections of heart muscle phosphatides. The object of this form of treatment is to supply to the heart the substances that are lost or changed when it becomes fatigued. Phosphatides are indicated particularly in cases of cardiac decompensation accompanied by high blood pressure, pulmonary emphysema, or valvular lesions in which the obstruction is not insurmountable. In severe cases in which digitalis and diuretics are without effect the authors recommend a five or ten day period in which only phosphatides are given (daily intramuscular injection of from 1 to 2 cc. of a 10 per cent emulsion). Sometimes, following a period of phosphatide treatment, digitalis again becomes effective.

Erythremia: Spleen Treatment.—Kähler calls attention to the fact that up to the present there has not been advanced convincing evidence of the presence of hemolysins in the spleen, and reports four cases of erythremia in which spleen treatment did not have any effect on the subjective and objective general condition of the patient.

Deutsche medizinische Wochenschrift, Berlin

56: 859-900 (May 23) 1930

*Insufflation of Uterine Tubes: Seven Years' Experiences. H. Sellheim.—p. 859.
Significance and Treatment of Endothelial Symptom (Decreased Resistance of Cutaneous Capillaries Against Internal Pressure). R. Snyderhelm and M. Heinemann.—p. 860.
*Serotherapy in Lobar Pneumonia. Schottmüller.—p. 863.
*Malariotherapy in Multiple Sclerosis. G. L. Dreyfus and K. Mayer.—p. 863.
Individual Reaction to Soporifics After Oral and Rectal Administration. A. Friedemann.—p. 867.
Misuse of Term Constitution, Especially in Expert Testimony. J. Bauer.—p. 870.
Gonorrheal Arthritis: Diagnosis and Treatment. O. Kingreen.—p. 872. C'td.
*Results of Prophylactic Diphtheria Vaccination of Four Thousand Children in Berlin-Schöneberg. H. Grosskopf.—p. 874.

Insufflation of Uterine Tubes: Seven Years' Experiences.—Sellheim employed insufflation of the uterine tubes in cases of sterility. He considers this method especially helpful for the diagnosis. He thinks that impermeability of the tubes is not proved until the results of insufflation have been negative at three different times during the intermenstrual period. Many authorities are of the opinion that insufflation has also a therapeutic value. The author himself observed a number of cases, in which pregnancy set in shortly after the insufflation. However, because he generally combines with the insufflation also a dilation of the cervix and a curettage, he is not positive which of the three factors is the most effective. But because during insufflation it appeared occasionally as if some obstruction was overcome by the pressure, he thinks that in some cases the good results are due to the insufflation. This method is also of value for maintaining the permeability after salpingostomy has been done. The insufflation should always be preceded by a careful examination of the patient and should be done under anesthesia so as to be sure that no contraindications exist and to guard against complications. The author asserts that the method is not so dangerous as is believed by some authorities. He admits that carelessness might cause complications. However, not all fatalities that follow insufflation are caused by it. He relates a case in which a woman died of pneumococcus sepsis shortly after insufflation had been done. But the pneumococcus had entered the organism by way of the lungs and not through the abdominal cavity. The author recommends insufflation of the uterine tubes in cases of sterility.

Serotherapy in Lobar Pneumonia.—Schottmüller points out that in a considerable percentage of cases of lobar pneumonia the fever abates gradually on the sixth or seventh day or at the beginning of the second week. Simultaneously the general condition improves considerably, in spite of the fact that the pathologic process still persists for a considerable time and that the pneumococci are still found in the sputum. These observations indicate that certain immunity processes determine the favorable outcome and from this the author concludes that serotherapy might be helpful. He used serum from convalescent patients, at first without consideration of the type of pneumococcus. Later it was possible to employ serum from convalescents whose pneumonia had been caused by the same type of pneumococcus as that of the patient. The serotherapy did not show marked effects. However, it should be considered that it was not possible to employ it during the first days of the disease. The author recommends that this form of serotherapy of lobar pneumonia be further investigated, especially in larger hospitals. He states not only that convalescent serum should be extracted and properly stored but also that blood transfusions (up to 1 liter) should be made directly from the convalescent to the patient. It is, of course, necessary that the blood groups be identical. The author points out that this form of serotherapy has the advantage that it avoids serum sickness, a condition that frequently develops when animal serums are employed. However, additional investigations will be necessary to prove whether the treatment with convalescent serum is of value.

Malariotherapy in Multiple Sclerosis.—Dreyfus and Mayer began malariotherapy of patients with multiple sclerosis nearly five years ago. During this time they employed the method in more than sixty cases. On the basis of their observations they come to the following conclusions: 1. Malariotherapy of multiple sclerosis is not a dangerous treatment, if certain precautions are observed. It should be given only in a hospital so that the patient's circulation may be kept under careful observation. 2. Serious disturbances in the metabolism, a poor general condition and particularly circulatory disorders are contraindications to malariotherapy because the recovery from the fever is mainly dependent on the condition of the circulation. In doubtful cases the fever treatment should be preceded by a preliminary dextrose and strophanthin injection. 3. In cases with serious cerebral and spinal symptoms, malariotherapy should not be instituted even if the disease has been of only short duration. In patients who have had multiple sclerosis longer than from three to five years, malaria treatment is not effective and therefore not advisable. 4. The shorter the duration of the disease, the better the prospects of improvement. When the multiple sclerosis has existed longer than two years the efficacy of malariotherapy is essentially lessened, compared to that in newer cases. 5. The results are most favorable in patients ranging in age from 18 to 40 years. 6. The chronic progressive form of sclerosis is influenced just as favorably as the form in which the progress is characterized by a succession of remissions and exacerbations. 7. The treatment is equally effective in the two sexes. 8. The inoculation of malarial parasites from metasyphilitic persons to nonsyphilitic patients with multiple sclerosis does not involve risks. 9. If the patients

are carefully selected, lasting improvements may be expected in from 30 to 40 per cent of the cases. 10. Further investigations will be necessary to determine whether it is advisable to follow a successful malaria treatment with an arsphenamine cure, and whether after a year's interval, during which arsphenamine preparations should be given, a new fever cure will be helpful.

Results of Prophylactic Diphtheria Vaccination of Four Thousand Children in Berlin-Schöneberg.—Grosskopf states that about 4,000 children, the majority of them of school age, were vaccinated against diphtheria during the last two years. The vaccine used was toxin-antitoxin floccules. The results of these vaccinations are summed up as follows: 1. The vaccination itself never caused serious complications. 2. The proportion of children who contracted diphtheria in spite of the vaccination was low (0.5 per cent). 3. The diphtheria developing in vaccinated children was not, as some authors believe, especially severe; on the contrary, the course was mild. 4. Complications, in the form of anaphylactic manifestations, need not be feared. The author expresses the hope that the good results that have been obtained in Germany and the favorable reports from America, regarding diphtheria vaccination, will encourage the general use of diphtheria vaccination.

Medizinische Klinik, Berlin

26: 725-760 (May 16) 1930

Aims of Physiologic Instruction in Medical Education. W. Trendelenburg.—p. 725.
Treatment of Hypertrophy of Prostate. L. Casper.—p. 729.
*Diagnosis of Perforated Cerebral Aneurysms. J. Jacobi.—p. 730.
Diagnosis of Cystic Kidney. H. Steinitz.—p. 732.
Clinical Aspects and Treatment of Psittacosis. K. Inshäuser.—p. 733.
*Results of Liver Therapy in Paroxysmal Hemoglobinuria Due to Cold. E. Lichtmann.—p. 735.
*Actinomycosis of Lungs. H. Donalies and J. Schmidt.—p. 735.
Epileptic Organism and Symptoms of Epilepsy. E. von Thurzó.—p. 736.
Morphologic Variations of Bacteria and Investigations on "Pettenkoferia" (Kuhn). P. Kuhn.—p. 739.

Diagnosis of Perforated Cerebral Aneurysms.—A woman, aged 28, had had frequent influenza-like attacks during the past two years. Sometimes the nasal discharge and the sputum contained blood. She also had occasional headaches, which were localized in the left frontal and temporal regions, but she appeared healthy and strong. Suddenly she became ill with vomiting and attacks of dizziness. A physician was called who detected bradycardia and who assumed poisoning. The patient was hospitalized. Jacobi describes results of the examination and the further course of the disease. The patient died twenty-eight hours after the first symptoms had become manifest. This suddenly developed disease in an apparently healthy individual could not be diagnosed. Exogenic intoxication seemed improbable. The condition of the circulation and the results of the examination of the urine spoke against uremic coma. Diabetic coma likewise seemed improbable. The bradycardia, the coma and the emesis indicated increased cerebral pressure and an intracranial process. The symptoms that became manifest on the second day spoke for a meningitic process. Spinal puncture revealed increased pressure, a slight pleocytosis and a considerable amount of blood in the fluid. The blood content of the cerebrospinal fluid made the diagnosis meningitis improbable and indicted a cerebral hemorrhage, but a cause for such a condition could not be detected. For syphilis, contracted kidney or endocarditis, which are the most frequent causes of apoplexy in young persons, there were no indications. The possibility of a latent cerebral abscess was considered. The necropsy revealed a perforated infectious dissecting aneurysm of a branch of the middle cerebral artery of the left side. This condition had not been thought of.

Results of Liver Therapy in Paroxysmal Hemoglobinuria Due to Cold.—Lichtmann reports that a man, aged 34, asked medical advice on account of blood in the urine. The patient stated that, whenever he was exposed to damp cold, the urine became almost black and that this condition was accompanied by chills, painfulness of all joints and an oppresive sensation in the chest and fever. The anamnesis revealed that during childhood he had been subject to hematuria after cold baths. During the war he was likewise troubled with this ailment whenever the weather was cold and damp. A careful examination was made during a period when the patient was free from hematuria. Serologic syphilis tests always gave negative results. When Rosenbach's test was performed, that is, when the patient was given a cold foot bath lasting ten minutes, blood appeared in the urine. The case was diagnosed as paroxysmal hemoglobinuria caused by cold. The author reasoned that, because liver treatment is especially effective in the hemolytic forms of pernicious anemia, it might also prove effective in this case. A liver preparation was prescribed and under the influence of this treatment the patient's condition improved markedly. He gained in weight and stated that after exposure to cold he did not have blood in the urine. The liver treatment was continued until the spring. In the fall the patient consulted the physician again; after the liver diet had been discontinued for six months, Rosenbach's test again produced a dark urine and the paroxysmal hemoglobinuria recurred with all its other symptoms. Liver treatment was resumed and, when Rosenbach's test was repeated after two weeks, hemoglobinuria did not become manifest.

Actinomycosis of Lungs.—Donalies and Schmidt assert that the symptomatology of pulmonary actinomycosis does not have specific characteristics that distinguish it from other bronchial and pulmonary disorders, and its true nature is generally not detected until fistulas develop in the wall of the thorax. The diagnosis is simple if the actinomycotic granules are found in the sputum, in the puncture fluid, in the pleural exudate or in the pus from the fistulas. Roentgenoscopy often leads to an incorrect diagnosis, because the roentgen picture of pulmonary actinomycosis is not characteristic and the differentiation from pulmonary syphilis, from gangrene of the lung, from bronchiectasis and from tumors of the lung is difficult. The authors describe the clinical aspects of pulmonary actinomycosis in a man, aged 43. In this instance the disease was not correctly diagnosed until a fistula developed. Regarding the prognosis, the authors state that in the pulmonary form it is less favorable than in other forms of actinomycosis, because an effective therapy is almost impossible. To keep the fistulas open is the main factor of treatment. Medication with potassium iodide and roentgen therapy have also proved helpful in some instances.

Münchener medizinische Wochenschrift, Munich

77: 883-924 (May 23) 1930. Partial Index

Newer Results of Diphtheria Prophylaxis. E. Löwenstein.—p. 883.
*Development of Compensation Disturbances of Heart. A. Krumeich.—p. 884.
Tendency of Skin to Bleed Under Vacuum. F. von Borbély.—p. 886.
*Normal Chemical Composition of Blood and of Blood Serum in Human Beings. F. Lickint.—p. 888.
Intravenus Pyelography. H. Gissel.—p. 889.
*Phlegmons of Floor of Mouth. Wassmund.—p. 892.
Possibility of Detoxicating Intestinal Contents by Means of Salt from Vange Spring in England. W. Hinz and R. Pinner.—p. 893.
*Investigations Whether Iodine Fed to Milk-Producing Animals as Galactagogue May be Harmful for Milk Consumers. E. Maurer.—p. 895.
Contributions to Medical Science by Surgical Clinic of University of Berlin. A. Bier.—p. 897.

Development of Compensation Disturbances of Heart.—Krumeich reports the results of anamnestic investigations on fifty patients with valvular disorders and on fifty patients with arteriosclerosis. Ten of the patients with valvular disorders stated that the compensation disturbances developed following bodily exertion. In most of the cases the overexertion had been continued for days and even for weeks. In six instances the compensation disturbance developed after a psychic shock. One patient with a mitral lesion in whom the perpetual arrhythmia had been absent for several years developed a severe compensation disorder with a relapse of perpetual arrhythmia following excessive drinking and smoking. Two women developed compensation disorders during pregnancy. In twenty patients the compensation disturbance developed after infectious diseases. In eleven patients with valvular lesions the decompensation could not be explained. It developed gradually. In the fifty patients with arteriosclerosis, the majority of whom had arterial

hypertension, the causes of the decompensation were quite different. Psychic shock was given by only one patient as the cause, and in six patients the anamnesis revealed an overexertion. In thirteen instances the insufficiency developed during ordinary work. The author thinks that in some of the persons the decompensation would not have developed if they had taken sufficient rest. In four patients, drunkenness seemed to be the cause. In one case, cardiac insufficiency followed a light bath and in another patient a brine bath. In four cases it developed after an angina pectoris, and in fourteen instances after an infectious disease. In eighteen of fifty patients with arteriosclerosis the cause of the development of the cardiac insufficiency was not quite clear. In the conclusion the author points out that these investigations have practical significance in that they enable the physician to draw conclusions for the treatment.

Normal Chemical Composition of Blood and of Blood Serum in Human Beings.—Lickint gives a tabular report that indicates the percentage of each of the various chemical substances in normal whole blood and in normal serum. The amounts given in the table are based on the author's own laboratory experiences and on reports in the literature. In the second part of his article he criticizes the inaccurate terminology that is found in many medical papers. He advocates certain reforms and stresses the necessity of a standard terminology.

Phlegmons of Floor of Mouth.—Wassmund asserts that according to reports in the literature the mortality rate in phelgmonous suppurations of the floor of the mouth is about 40 per cent. He, however, obtained better therapeutic results. He gives a tabular report showing the number of cases that came under his observation in 1927 and 1928. A considerable number developed at the time of the influenza epidemic. In discussing the anatomic conditions in suppurations of the floor of the mouth the author states that the majority develop from suppurative processes in the lower jaw, especially from carious teeth. The suppuration spreads from the bone to the softer tissues. If the pyogenic micro-organisms pass through the lymph vessels and nodes, the process is usually less virulent and generally develops in the form of an abscess. One hundred and forty-three of 178 cases of suppurations of the floor of the mouth which were observed by the author were abscesses, whereas in the other 35 cases the suppuration was of the phlegmonous type. The latter form develops if the suppuration spreads directly from the bone to the loose connective tissue. The mortality rate in the phelgmonous suppurations was 11.9 per cent, but there was not a single fatality among the 143 patients in whom the suppuration was of the abscess form. Following a more detailed discussion of the anatomic conditions the author discusses the therapy. He stresses that all suppurative foci should be opened and drained. In the last part he also discusses the various etiologic factors. He mentions infected extraction wounds, mistakes or accidents in local anesthesia, and osteomyelitis of the lower jaw.

Investigations Whether Iodine Fed to Milk-Producing Animals as Galactagogue May be Harmful for Milk Consumers.—Maurer directs attention to reports in agricultural journals, which recommend an increase in the iodine content of the food of milk-producing animals, for the purpose of increasing the quantity as well as the fat content of the milk. The author thinks that an excessive amount of iodine in the milk might involve dangers for the consumers, especially for iodine susceptible persons in regions where goiter is endemic. He reviews the results of tests that have been conducted to determine the iodine content of milk from animals that have received food with an increased amount of iodine. It was found that the iodine content of such milk is not great enough to cause injurious effects in normal persons. However, for some susceptible persons the amount is excessive. In the conclusion the author stresses that physicians should bring this to the attention of the agricultural research institutes, and that the latter should make experiments to determine the minimum of iodine that will produce the galactagogue effect but will not bring into the milk quantities of iodine that would be harmful to susceptible persons.

Virchows Archiv f. path. Anat. u. Physiol., Berlin

277: 311-594 (May 12) 1930

*Osteoporosis: Case. Gerth.—p. 311.
Fracture of Neck of Femur: Microscopic Changes in Head of Femur. E. Freund.—p. 326.
*Hemoglobin: Place of Formation. L. Villa.—p. 380.
Small but Fatal Traumatic Cerebral Hemorrhages. O. Berner.—p. 386.
*Endocarditis: Changes in Brain. N. A. Zolotowa.—p. 420.
Cavernous Hemangioma of Brain. W. Schmisch.—p. 431.
Ganglioneuroma of Central Nervous System. J. Wätjen.—p. 441.
Malignant Tumor in Guinea-Pig. G. Roskin.—p. 466.
Primary Melanoma of Liver. R. Koch.—p. 489.
*Heart: Congenital Diverticulum. S. Mahrburg.—p. 498.
*Id.: Rare Congenital Lesions. M. B. Ariel.—p. 501.
Id.: Effect of Peripheral Obstruction of Pulmonary Artery. A. Goedel. —p. 507.
Effect of Atmospheric Moisture on Development of Experimental Tuberculosis. A. Mager.—p. 522.
*Tuberculosis of Male Genitalia. J. Lehmann.—p. 537.
Syphilitic Pulmo Lobatus: Case. F. Landsberg.—p. 583.

Osteoporosis: Case.—Gerth reports a case of generalized osteoporosis in a woman, aged 64. Postmortem examination revealed a marked thinning of the cortex and atrophy of the spongiosa in all the bones, which had resulted in softness and brittleness. Microscopic examination revealed only a few osteoblasts and moderate lacunar resorption. Osteoid formations were absent. Osteogenesis was decreased, whereas osteoclasis appeared to be normal. The bone marrow contained few cellular areas and most of it was of the fatty type.

Hemoglobin: Place of Formation.—On the basis of a study that was begun on megaloblasts in cases of pernicious anemia and then extended to normal, nucleated erythrocytes, Villa believes that hemoglobin is formed not in the protoplasm but in the cell nucleus.

Endocarditis: Changes in Brain.—Zolotowa reports three fatal cases of endocarditis in which postmortem examination revealed pathologic changes in the brain. Nervous manifestations had not been noted clinically in two of the cases but in one of them they were marked. In the first case the meninges were thickened and had undergone hyaline degeneration; marked changes were present in the choroid plexuses, and the blood vessels between the subependymal tissue and the nervous tissue were surrounded by a layer of leukocytes. In the second case the leptomeninges and the choroid plexuses were thickened and infiltrated, the subependymal neuroglia was increased in amount, small collections of cells were present round the vessels in the cortex and near the ventricles, and the nerve cells showed marked injury and, in places, neurophagia. In the third case the changes were even more pronounced; especially striking were a thrombus in the middle cerebral artery, marked injuries of the wall of the blood vessels, and the presence of a large number of streptococci round the blood vessels and between the ependymal cells of the ventricles and of the choroid plexuses.

Heart: Congenital Diverticulum.—Mahrburg describes a congenital diverticulum of the heart that he observed during the postmortem examination of an infant, aged 3 days. It was learned that when the umbilical cord was divided a blood vessel had bled profusely and in spurts. When the thorax was opened a diverticulum of the left ventricle extending downward and communicating with the ligated umbilical vessel was found. The main portion of the diverticulum was 5 cm. long and at the apex of the heart was 1 cm. thick; at the point where it had been ligated outside the abdominal cavity, its diameter was only 3 mm.

Heart: Rare Congenital Lesions.—In the postmortem examination of the heart of a cyanotic infant that had died two days after birth, Ariel found lesions of a type that has hitherto not been described in the literature. The heart, particularly the right half, was definitely hypertrophic and the foramen ovale was open. The left venous ostium was markedly narrowed. At the boundary between the left atrium and the left ventricle there hung down from the wall of the former and into the lumen of the latter three tumor-like structures with irregular, nodular surfaces. Each of the structures consisted of several lobes united at their base into a single body. At their edges all three structures were adherent and had narrowed markedly the atrioventricular opening. Both the surface

and sections of the structures were uniformly white and opalescent. Similar structures were present on the tricuspid valve. The author believes that the formations had been produced by an excessive growth of the embryonal connective tissue from which the valves develop.

Tuberculosis of Male Genitalia.—In the postmortem examination of the bodies of eighty-six men who had died from pulmonary tuberculosis, Lehmann found tuberculosis of the genitalia seventeen times (18.6 per cent). On the basis of a study of the cases he recommends unilateral or bilateral resection of an extra pelvic segment of the ductus deferens 10 cm. long to render subsequent castration unnecessary.

Wiener klinische Wochenschrift, Vienna

43: 641-672 (May 22) 1930

*Is Rickets an Avitaminosis? M. Pfaundler.—p. 641.
Disorders of Knee Joint. R. Kienböck.—p. 648.
Spontaneous Rupture of Varicose Veins. G. Nobl.—p. 650.
Influence of Vascular Compression on Transmission and Form of Pulse Wave. S. Peller.—p. 651.
*Relation of Cholelithiasis to Uterine Myoma and Ovarian Disorders. S. Plaschkes.—p. 654.
Formerly Unknown Pigment in Pathologic Urine. H. Popper.—p. 656.
Cat Scabies in Man. M. Oppenheim and A. Fessler.—p. 657.
Idem. A. Philadelphy and O. Grimm.—p. 658.
Treatment of Drunkenness. E. Gabriel.—p. 658.

Is Rickets an Avitaminosis?—In the first part of the article Pfaundler discusses whether the antirachitic principle is a vitamin. Investigations among various peoples, especially among those in polar regions, indicate that neither deficiency in ultraviolet irradiation nor deficiency of vitamin D in the food can be the etiologic factor of rickets, because this disease does not occur among the infants of peoples who receive neither a sufficient ultraviolet irradiation nor antirachitic substance in the food. In the second part of the article the author points out that it cannot be disputed that the antirachitic substance prevents and counteracts rickets successfully, either when it is administered by mouth or when formed in the organism under the influence of ultraviolet rays. However, the author advances the theory that this antirachitic substance becomes effective in that it counteracts an abnormal condition, which was caused by an ectogenic or endogenic factor. And if this is the case, the injurious factor would be the cause of rickets rather than the negative factor of the absence of the antirachitic substance. Another factor against the theory that rickets is only a deficiency disease is that it is frequently found among breast-fed infants among peoples whose food is not lacking in vitamin D. In the conclusion the author advances the theory that rickets is not primarily due to the absence of the antirachitic substance but that it is rather a constitutional disease due to genotypic and paratypic deviations.

Relation of Cholelithiasis to Uterine Myoma and Ovarian Disorders.—Plaschkes observed the concurrence of uterine myoma and cholelithiasis in about 100 cases. It is generally known that cholelithiasis is much more frequent among women than among men. Many authorities are of the opinion that pregnancy is an etiologic factor in cholelithiasis because the cholesterol content of the blood and of the bile is considerably increased during and after pregnancy. However, the fact that cholelithiasis is also frequent among virgins and nulliparas indicates that pregnancy is not the main etiologic factor. The study of clinical histories of women with cholelithiasis has revealed that not only uterine myoma but likewise other disorders of the female genitalia, especially those of the ovaries, concur with cholelithiasis. The author further mentions the relation between exophthalmic goiter, myoma and ovarian disorders. That other endocrine disorders, especially those of the cholesterol forming suprarenals, are significant in the formation of gallstones is proved by the fact that biliary calculi containing cholesterol are the most frequent. The correlation between uterine myoma and cholelithiasis is also proved by the fact that gallstone colics occur in many cases suddenly after myoma operations. The author points out that the knowledge of the relation between ovarian disorders, uterine myomas and cholelithiasis has differential diagnostic significance. Pains in the epigastric region in patients with uterine myomas or ovarian disorders indicate cholelithiasis rather than duodenal ulcer or periduodenitis, especially when the roentgenogram is not quite clear.

Zentralblatt für Chirurgie, Leipzig

57: 1201-1264 (May 17) 1930

Prognosis of Injuries to Spinal Column. A. W. Fischer.—p. 1202.
*Stenosis of Pylorus by Gallstones. M. Makkas.—p. 1208.
Late Postoperative Emphysema. H. Baumecker.—p. 1210.
*Operation for Diastasis of Abdominal Rectus Muscle. M. B. Juckelson. —p. 1215.
Treatment of Luxation of Semilunar Bone. C. Ach.—p. 1217.
*Case of Mushroom Ileus Associated with Spermatoblastoma of Testis. H. Bär.—p. 1219.
*Does a Bleeding Nipple Justify Removal of Breast? W. Mintz.—p. 1220.

Gallstones Cause Stenosis of Pylorus.—Makkas records a curious case of obstruction of the pylorus caused by gallstones. A woman, aged 42, had had icterus three years previously without pain but enduring for twenty days. One week after the disappearance of the icterus she experienced severe pain in the epigastrium. Two and again six months later she had another similar attack requiring morphine to allay the pain. The attacks became more frequent until finally she had one every day, accompanied by vomiting, belching and burning in the stomach. Three months previously she noticed blood in the feces. She lost considerable weight and became so weak that she had to go to bed. Although the peristalsis of the stomach was distinctly visible, there was no tenderness on pressure nor could a tumor be palpated. Roentgen examination disclosed a high grade pyloric obstruction. The pylorus and a portion of the duodenum were resected and the gallbladder was removed. A palpable pyloric tumor proved to be caused by twelve gallstones lying in the submucosa of the duodenum close to the pylorus. They formed a complete ring encircling the bowel. Each stone was of about the size of a pea and faceted. Lying in the submucosa, these stones caused the overlying mucosa to bulge greatly into the lumen of the bowel so as to cause an obstruction. Evidently the stones had perforated from the gallbladder into the duodenum without penetrating all the coats of the intestine. The *vis a tergo* of the oncoming stones steadily pushed the first stone through the wall of the bowel, making a sort of tunnel, like a dissecting aneurysm, which became filled when the twelve stones had entered it. At two points the mucosa had become necrotic, and it is assumed that eventually all the stones would have been projected into the bowel, thus relieving the obstruction. However, the general condition of the patient was such that she evidently would not have survived until this event could take place.

Operation for Diastasis of Abdominal Rectus Muscle.—The operation described by Juckelson is termed the plication operation. It consists in exposure of the aponeurosis of the muscle, all superfluous skin having been exsected, and plication of the superfluous aponeurosis lengthwise so as to form a fold. The two leaves of the aponeurosis are sutured together, only at the base, however; the fold is then collapsed so as to fall flat on the sutured base, spreading out in tent fashion, and the edges of the fold are then sutured to the underlying anterior rectus sheath throughout its entire length. Thus, the sheath is not opened; the edges of the abdominal rectus are approximated so as to overcome the diastasis, and the superfluous fascia is used to strengthen the weak median part and make firm the abdominal wall.

Case of Mushroom Ileus.—The case related by Bär is an odd one in that the patient had a malignant seminoma or seminoblastoma for which it was necessary to operate because of intestinal obstruction, later shown to be caused by pressure of the tumor on the bowel. The condition did not improve much. Yielding to the patients' great desire to eat mushrooms, he was given permission to have one meal of mushrooms. However, the wife secretly fed him mushrooms for five consecutive days. On the tenth day, symptoms of complete obstruction supervened; but, because of the patient's extremely enfeebled state, operation was contraindicated. The bulging abdomen was opened with scissors and a large quantity of foul intestinel contents was evacuated with much force. The hand was inserted into the bottom of the "pit" and with some difficulty

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a whole mushroom, stem and all intact, was withdrawn. Immediately 156 mushrooms welled up into the opening. None had been either chewed or digested. Evidently the patient had swallowed them whole. The first mushroom had acted as a plug, and when it was removed the remaining mushrooms were released. The removal of the tumor at the first operation had been somewhat difficult because of the presence of many adhesions, and doubtless the wall of the bowel had been injured slightly so that it was possible for the first mushroom to force its way through but then served as a stop preventing the other mushrooms eaten to pass through. The resulting mass of mushrooms caused the obstruction of the bowel. The patient died; but, since a necropsy was not permitted, the truth of this supposition could not be established to a certainty.

Does a Bleeding Nipple Justify Removal of the Breast?—Mintz is convinced that every bleeding breast is organically diseased, that microscopic changes are demonstrable, and that sooner or later a malignant change will take place. Therefore, he urges that all such breasts be removed. Never has he seen such a breast in which there were not evidences of a malignant condition. As to whether removal is advisable at all age periods is problematic. It is advisable in the fifth decennium, but in the earlier decades the mental effect of this mutilation must be considered.

Klinicheskaya Meditsina, Moscow

8: 1-48 (Jan.) 1930

*Clinical Study of Recurrence of Typhus. B. N. Agricolansky.—p. 13.
Characteristics of Recurrent Typhus. E. Y. Latsinik.—p. 19.
*Clinical Study of Relation Between Scarlet Fever and Sore Throat. I. L. Riskin.—p. 22.
*Influence of Scarlet Fever Serum on Complications of Disease. S. S. Kanevsky, P. S. Sosnov and R. I. Bernzoun-Kotin.—p. 29.
Soduku: Report of a Case in Odessa. V. K. Stefansky and A. A. Grinfeld.—p. 33.

Clinical Study of Recurrence of Typhus.—Agricolansky concludes that the recurrence of typhus happens more frequently now than in the period of the typhus epidemic; between 1918-1921, out of 1,121 cases only 42 recurrences were observed, whereas between 1925-1928, out of 262 cases there were 30 recurrences. In recurrent typhus, however, the duration of the illness is shorter and the disease less intensive; the heart, lungs and nervous system are not affected as much as they are in cases in which typhus occurs for the first time. Recurrence of typhus is chiefly attributed to lack of immunity, low bodily resistance caused by hunger and fright or nervous debility.

Clinical Study of Relation Between Scarlet Fever and Sore Throat.—Riskin studied 222 cases of scarlet fever and concludes that in 50 per cent of them the patient had sore throat prior to or after the disease. Sore throat is usually contracted by the mother or nurse on the fourth or fifth day of the child's illness. In thirty-five of the cases studied it had occurred prior to the occurrence of scarlet fever in the family. In 27 cases of sore throat, 50 per cent of the patients had at some previous time suffered from scarlet fever. During the illness it was observed that the leukocytes increased in number and the lymphocytes decreased. Therefore it may be concluded that sore throat and scarlet fever are closely allied diseases.

Influence of Scarlet Fever Serum on Complications of Disease.—Kanevsky et al. administered serum in the treatment of acute scarlet fever in children. Of 1,000 patients, 38.9 per cent received the treatment and 61.1 per cent did not; but it was found that the serum treatment did nothing to prevent the occurrence of complications. Of 389 patients treated with serum, 69.6 per cent had serious complications. In cases in which serum was injected at the beginning of the disease, the severity of the disease was not diminished. In children aged less than 5, otitis and mastoiditis occur more frequently than they do in older children.

Pediatria, Moscow

13: 353-432, 1929

Clinical Study of Presence of Hymenolepsis Nana in Intestines of Children. N. I. Osinovsky.—p. 353.
Etiology of Hydronephrosis in Infants. Y. N. Sadykova.—p. 356.
Electrotherapy in Treatment of Infantile Paralysis. N. I. Korotnev and E. F. Eremitch.—p. 362.
*Treatment of Whooping Cough with Streptococcic Vaccine. N. G. Belatskaya and S. I. Kaplansky.—p. 370.
Oleogranuloma in Nurslings. M. I. Rabinovitch.—p. 376.
Acute Aplastic Anemia in Childhood: Case. L. D. Shteinberg.—p. 385.
Effect of Mountain Climbing on Girls and on Boys. V. Gorinevskaya and A. Egorov.—p. 391.
Diplococcus Abscess of Liver. I. K. Dogutskaya.—p. 402.
Use of Viosterol in Pediatrics. V. S. Vayl.—p. 404.

Treatment of Whooping Cough with Streptococcic Vaccine.—Belatskaya and Kaplansky treated eighty persons with whooping cough by means of streptococcic vaccine combined with whooping cough vaccine. The treatment produced good results in that it made the disease less severe, thus relieving the patient of much pain. The earlier the treatment is started, the better the results, and in younger children the treatment produces results sooner than in older patients. When the whooping cough is accompanied by influenza, the disease lasts longer, but the same treatment may be applied with good results.

Acta Pædiatrica, Upsala

9: 229-541 (May 20) 1930

Appearance of Electrocardiogram in Heart Lesions Produced by Cod Liver Oil Treatment: Experiments on Albino Mice. E. Agduhr and N. Stenström.—p. 229.
Id.: Experiments on Albino Rats. E. Agduhr and N. Stenström.—p. 280.
Id.: Experiments on Rabbits. E. Agduhr and N. Stenström.—p. 307.
*Id.: Experiments on Dogs. E. Agduhr and N. Stenström.—p. 345.
Determination of Small Quantities of Phosphorus by Titration. M. Odén.—p. 392.
Sugar Content of Blood Following Ingestion of Dextrose. I. Jensen.—p. 405.
Globulin Content of Blood of Children. J. Munk.—p. 411.
Premature Infants: Type of Respiration. T. Salmi and E. E. Vuori.—p. 432.
Id.: Effect of Warm Bath on Number of Leukocytes. I. Kijanen and L. Hietarinta.—p. 444.
*Whooping Cough: Encephalitis as Complication. W. Mikulowski.—p. 454.
Syphilitic Cirrhosis of Liver in Infants. V. Joukovsky.—p. 485.
*Acute Myelogenous Leukemia. L. Salomonsen.—p. 497.
Congenital Atresia of Bile Ducts. V. I. Baastrup.—p. 509.
Meningococcus Sepsis: Protracted Form. I. Lundholm and R. Ströman.—p. 518.

Appearance of Electrocardiogram in Heart Lesions Produced by Cod Liver Oil Treatment: Experiments on Dogs.—Agduhr and Stenström state that, in eight dogs treated for from eight to twenty months with cod liver oil at a daily dose of from 0.1 to 1 cc. of oil per kilogram of body weight, they noted alterations in their electrocardiogram and degenerative heart lesions of the usual type. The alterations in the electrocardiogram were not marked and consisted mainly of changes in the size and direction of the T-summit and prolongations of the times of the curves. Definite changes of this type occurred in all the cases and were rather uniform. Curves such as are noted in bundle branch block were noted in only two cases, in one of which the largest dose of oil used had been given. The changes in the electrocardiogram appeared sometimes within from two to four months after the treatment was begun. On the basis of their observations the authors conclude that the heart of a dog is injured by even as small a daily dose of cod liver oil as 0.1 cc. per kilogram of body weight.

Whooping Cough: Encephalitis as Complication.—Mikulowski reports the clinical histories of three infants in whom whooping cough was complicated by encephalitis. He does not believe that the popular hypothesis that the venous hyperemia, the edema of the brain and the extravasation of blood can be explained on a mechanical basis is applicable in all cases and considers the changes in the brain, nerves and blood vessels as a manifestation of the action of the whooping cough toxin. Just as in the pathogenesis of intestinal hemorrhages in typhoid, so in the pathogenesis of extravasations of blood in whooping cough a rôle is played by a hemorrhagic diathesis produced by a dysfunctioning of the liver injured by the whooping cough toxin.

Acute Myelogenous Leukemia: Case.—Salomonsen reports a case of acute myelogenous leukemia in an infant, aged 5 months. During the first four months post partum the infant had been perfectly well but at this time there rapidly

developed a grave hematic condition characterized by intense paleness, loss of strength and cutaneous hemorrhages, and terminating fatally one month later. An examination of the blood was made the day before death and revealed a hemoglobin content of 20 per cent, 740,000 erythrocytes and 37,260 leukocytes. Among the cells were many young forms. A postmortem examination revealed the presence of extensive leukemic cellular infiltrations in the organs, large infiltrations on the internal wall of the thorax, marked hypertrophy of the liver (which showed diffuse cellular infiltration), large localized cellular infiltrations of the parenchyma of the kidney, and diffuse infiltration of the spinal column, the spleen, the lymph nodes, the omentum, and the ovaries.

Bibliotek for Læger, Copenhagen

122: 207-267 (May) 1930

Roentgen Tubes from Early Days of Roentgenology. A. B. W. Nielsen. —p. 207.
Cutaneous Reaction to Cold. J. Foged.—p. 219.
*Roentgen Treatment of Malignant Tumors. J. Juul.—p. 252.

Roentgen Treatment of Malignant Tumors.—Juul discusses the dosage in roentgen therapy of malignant tumors in the light of his results in roentgen therapy of transplanted tumors in white mice.

Finska Läkaresällskapets Handlingar, Helsingfors

72: 261-339 (April) 1930

*Origin of Malignant Melanoma of Tunica Conjunctiva. O. Heinonen. —p. 261.
*Treatment of Tumors of Pituitary Body with Roentgen Rays. B. Nyström.—p. 274.
*Bovine Undulant Fever. O. Sievers.—p. 295.
*False Aneurysm Due to Arrosion of Internal Carotid Artery: Two Cases. W. Tollet.—p. 305.

Origin of Malignant Melanoma of Tunica Conjunctiva.—In Heinonen's case of malignant melanotic tumor localized in the tarsal conjunctiva of the upper eyelid, extirpation was followed by several recurrences, partly in the same place, partly free pigmented tumors of the conjunctiva. Microscopic examination of one of the tumors, which had been macroscopically visible for only two weeks and rapidly increased in size, seemed to indicate changes of an epithelial nature. In the peripheral, more recent portions of the tumor there was chiefly epithelial proliferation, in the central, older portions, pathologic degeneration of the cells that had undergone proliferation. These cells bore a marked resemblance to the tumor cells of the primary tumor.

Treatment of Tumors of Pituitary Body with Roentgen Rays.—In 15 of the 32 cases reported by Nyström there was acromegaly, in 1, adiposogenital dystrophy. In 17 irradiation was followed by noticeable improvement, in 15 by no change or by aggravation. The best results occurred in the cases with acromegaly. The treatment was well borne. In no cases could aggravation be definitely connected with the roentgen treatment. Of importance in prognosis are the character of the tumor, time when treatment is begun, and technic.

Bovine Undulant Fever.—Sievers reviews his experiences with this disorder in Scandinavia and reports the results of his agglutination tests with Bang's abortion bacillus in 500 patients in Helsingfors. No certain cases of undulant fever were found. In two instances there was agglutination in the dilution 1:80. In 5 per cent of all cases agglutination occurred in the dilution 1:10 or 1:20.

False Aneurysm Due to Arrosion of Internal Carotid Artery: Two Cases.—In both of Tollet's cases, throat infection is believed to have been the primary cause of the arrosion. The six similar cases found by him in the literature are cited.

Hospitalstidende, Copenhagen

73: 437-448 (April 10) 1930

*Cause of Hypertension. K. Secher.—p. 437.

Cause of Hypertension.—Secher suggests that certain forms of hypertension may depend on insufficiency of the thyroid. In clinical experiments a temporary decrease in blood pressure can be attained by injection of parathyroidal hormone. Pathologico-anatomic examinations show that, in cases of hypertension, changes characterized by an increase of eosinophils appear in the parathyroid.

73: 449-460 (April 19) 1930

*Lipemia in Anemia Due to Hemorrhage in Rabbits. A. H. Johansen.—p. 449.

Lipemia in Anemia Due to Hemorrhage in Rabbits.—Johansen made a daily venesection in six rabbits. After a few days the hemoglobin percentage fell to about 30, with simultaneous reduction of the albumin percentage and the colloidosmotic pressure. These values remained unchanged to the end of the experimental period. Lipemia set in almost simultaneously with the lowest colloidosmotic pressure. Little support is offered for the theory that in nephroses the reduction in the albumin percentage and the colloidosmotic pressure through loss of albumin in the urine, is so great as to cause edemas. The loss of albumin in nephroses through the urine is comparatively far less than that brought about by venesection in rabbits, and here no edemas occurred.

73: 461-488 (April 24) 1930

*Prognosis in Chronic Diseases of Heart. K. Faber.—p. 461.
*Idiopathic Dilatation of Common Bile Duct. F. Djørup.—p. 473.
*Diagnosis of Esophagitis Dissecans. G. Büllmann.—p. 484.

Prognosis in Chronic Diseases of Heart.—In view of the danger to the patient in an unnecessarily pessimistic outlook, Faber emphasizes the many cases in which the prognosis is good in spite of the chronic cardiac condition and asserts that even in the grave cases an absolutely poor prognosis is rarely permissible.

Idiopathic Dilatation of Common Bile Duct.—Djørup's case is, he says, the first with recovery after operative treatment to be recorded in Denmark. The case illustrates both the diagnostic and the therapeutic difficulties in idiopathic dilatation of the common bile duct.

Diagnosis of Esophagitis Dissecans.—Büllmann is inclined to believe that henceforth comparison of the clinical symptoms with the roentgen observations will allow diagnosis of esophagitis dissecans during life.

73: 489-514 (May 2) 1930

*Aschheim-Zondek Pregnancy Reaction. E. Guldberg.—p. 489.
Proteolytic Enzymes in Leukocytes in Man and Their Significance in Course of Local Inflammatory Processes in Acute Inflammations. E. Husfeldt.—p. 502.

Aschheim-Zondek Pregnancy Reaction.—Guldberg reviews the principle and technic of this reaction, together with German statistics on the reaction (about 1,600 cases with accurate results in 98.25 per cent). In his own eighty cases there were seventy-eight correct diagnoses and two are still indefinite.

Hygiea, Stockholm

92: 321-368 (April 30) 1930

*Various Surgical Attempts at Treatment of Diabetes Together with Contribution to Casuistics of Rupture of Pancreas. S. von Stapelmohr.—p. 328.

Surgical Attempts at Treatment of Diabetes Together with Contribution to Casuistics of Rupture of Pancreas.—Von Stapelmohr reviews the various operative interventions in attempted treatment of diabetes and, in connection with ligature of the pancreatic duct, reports a case of subcutaneous total rupture of the pancreas in the median line of the body, with diastasis 0.5 cm. wide.

Ugeskrift for Læger, Copenhagen

92: 425-444 (May 1) 1930

Treatment of Acute Paronychia. S. Kiær.—p. 425.
*Serologic Group Differentiation of Organism: III. Serum. O. Thomsen.—p. 427.
Apparatus for Infusion. H. Tvedegaard.—p. 429.

Serologic Group Differentiation of Organism: III. Serum.—Thomsen found specific receptors corresponding to the group in the serum of the different blood groups, with only minor quantitative differences.